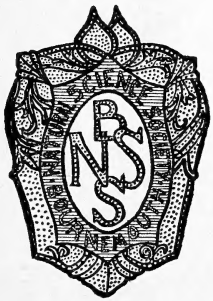
S.18.B.

BRITISH MUSEUM GENERAL LIBRARY NATURAL HISTORY

# Bournemouth Natural Science Society



# Proceedings

**(1978 - 79)**

VOLUME LXI

PART 1

# Bournemouth Natural Science Society

## Introductory Note

**The objects of the Society** are declared by the second of its rules to be "the promotion of the study of Science in all its branches, and of Public Education by means of Lectures, Field Meetings, the Reading and Discussion of Papers, and in any way that the Council of the Society shall deem advisable".

The branches of Science at present represented are as follows:—**Archæology and History, Astronomy, Botany, Entomology, Geography, Geology, Ornithology, Photography, Physics and Chemistry, and Zoology.**

Frequent meetings are held comprising Lectures and Demonstrations on subjects of scientific interest, illustrated by lantern slides, films, the epidiascope, diagrams, specimens and experiments.

Field Meetings are held in various suitable places in the neighbourhood of the town, or sometimes Coach Tours are arranged to districts of scientific interest at a distance.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting.

The Society possesses a Library available for the use of Members. Books may, under certain conditions, be borrowed by Members, and there is a Reading Room in which works of reference may be consulted. The Museum contains many valuable scientific collections and specimens. There is a well-equipped Dark Room for the use of Members interested in Photography.

Members are elected by the Council and pay an annual subscription of £5 for full membership. Life Subscription £50. Family Subscription (for members of a family living in the same house), is as follows: First Adult Member £5, additional Adult Members £3. Associate Membership Subscription is £1 and is restricted to young people up to 18 years of age or if a bona-fide full time student, up to 21 years of age.

Country Membership applies only to those Ordinary Members who reside permanently **Outside** the boundaries of Bournemouth, Christchurch and Poole.

Subscriptions of Country Members are, First Adult Member £3, additional Adult Members, same family £2.

Special subscription for visitors to Bournemouth, 50p per month.

Members may enter into a Deed of Covenant to pay subscriptions by Banker's Order over the period of seven years. At present, the Society benefits by approximately 54p on each £1 subscribed in this way. Full particulars from the Hon. Treasurer on request.

A three-monthly programme, giving full details of all meetings is supplied to every Member and a Volume of Proceedings is published each year of whch each Member receives a copy (additional members of a family living in the same house on application to the Secretary).

**Further particulars and membership application forms may be obtained from the Honorary Deputy Secretary, Bournemouth Natural Science Society, 39 Christchurch Road, Bournemouth.**

BRITISH MUSEUM GENERAL 21 DEC 1960 LIBRARY NATURAL HISTORY

PROCEEDINGS

of the

# Bournemouth Natural Science Society

VOLUME LXI

PART 1

1978 - 79

Edited by

S. C. S. Brown

PUBLISHED BY THE SOCIETY AT ITS HOUSE, 39, CHRISTCHURCH ROAD, BOURNEMOUTH

Price: 75p

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A set of back numbers may be consulted in the Society's Reference Library or individual Volumes borrowed from the Lending Library on application to the Librarian.

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# Bournemouth Natural Science Society

## OFFICERS AND COUNCIL FOR 1979–80

*N.B.—University degrees and other qualifications are inserted only at the first mention of names.*

**President :**
T. A. CRAWSHAW, F.M.INST.M.C.

**Vice-Presidents :**

SQ. LDR. J. L. C. BANKS
T. M. BELL, B.A. M.B., B.CH.
MISS K. MILNER BENNETTS, F.Z.S.
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BRIG. A. B. D. EDWARDS, C.B.E., M.C.
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J. C. MITTON
MRS. A. K. HUNT, B.SC.
MISS D. M. LOWTHER, B.SC.
MISS U. M. OGLE
F. OLDHAM, J.P., M.A., B.SC., F.INST.P.
G. TEASDILL, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.
W. C. THOMAS
D. A. WRAY, PH.D., M.SC., F.G.S.
MRS. G. M. THOMAS, M.A., B.LITT.

**Chairman of Council :** MISS K. M. BENNETTS
**Deputy Chairman :** G. TEASDILL

**Council :**

THE VICE-PRESIDENTS, OFFICERS, CHAIRMEN OF SECTIONS AND CHAIRMEN OF COMMITTEES (*all ex officio*)

A. ANDREW
MRS. M. ARNOLD
MISS B. M. BALL
DR. T. H. BLAKELEY
R. G. LEES
MRS. P. RUST
MRS. M. W. SAUNDERS
MISS W. A. SAUNDERS
CDR. G. W. WATSON
F. W. WILSON, F.C.I.S.

**Chairmen of Sections :**

Archæology and History: W. V. K. CHANNON
Astronomy : G. NASH, M.A., F.R.A.S.
Botany : MRS. D. DAIN
Geography: W. O. ROBINS, A.R.I.C.S.
Geology : MRS. B. TAYLOR
Photography : MISS U. M. OGLE
Physics and Chemistry: T. H. BLAKELEY, B.SC., PH.D., F.R.I.C.
Zoology — Entomology : SQ. LDR. J. L. C. BANKS
Mammalia : MISS K. M. BENNETTS, F.Z.S.
Ornithology : MRS. L. M. MADDOX
Members' Day: MRS. H. M. DICKINSON
Cine Programme: F. B. MARTIN, F.C.I.I.

**Hon. Secretary:** W. C. THOMAS
**Hon. Deputy Secretary:** F. R. WATSON
*Hon. Assistant Secretary :* MRS. B. E. HOOTON-SMITH
*Hon. Press Officer:* W. O. ROBINS
**Hon. Treasurer:** T. R. WALL
*Hon. Assistant Treasurer :* MRS. I. TOWNDROW
**Hon. Curator :** W. A. BRAY
**Hon. Editor:** S. C. S. BROWN
**Hon. Librarian:** R. E. HARWOOD
*Hon. Assistant Librarian:* MRS. B. E. HOOTON-SMITH
**Hon. Slides Custodian:** J. C. MITTON
**Hon. Projectionists :** *Cine*—W. HARDY: *Still*—J. C. MITTON

**Bankers :**
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**Trustees :**

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MISS K. MILNER BENNETTS
JOHN CHARLES MITTON
WILLIAM H. LEE

**Hon. Auditors :**
H. H. C. LANGFORD H. P. WHEELER

## COMMITTEES, 1979–80

**Finance and General Purposes :**

*Chairman :* Miss K. M. Bennetts

President, Deputy Chairman, Hon. Treasurer, Hon. Secretary, Chairman of Chairmen of Sections Committee, Hon. Deputy Secretary, Hon. Assistant Treasurer (*all ex Officio*)
Mrs. A. K. Hunt, Cdr. G. W. Watson, F. W. Wilson, F. Oldham

**Museum :**

*Chairman :* W. A. Bray
Chairmen of Sections (*ex officio*)
G. Teasdill

**Library :**

*Chairman :* W. J. Middleton
R. E. Harwood *(Librarian)*, Miss E. C. Todd, Miss C. Hayball, Mrs. B. E. Hooton-Smith *(Assistant Librarian)*, Miss J. M. Merchant, Miss C. F. Noll, F. Oldham, Miss L. M. Rowe

**House :**

*Chairman :* R. C. Buckland
Mrs. W. Chome, Mrs. B. Taylor

**Garden :**

*Chairman :* Mrs. W. Chome
Mrs. R. C. Crane, Mrs. D. Dain, Mrs. A. K. Hunt, Mrs. L. V. Nicklen

**Tea :**

*Chairman :* Mrs. M. K. Parkinson
Mrs. T. Crompton, Mrs. H. M. Dickinson, Mrs. E. Hardy, Miss E. Hartwell, Mrs. M. Heaton, Mrs. K. Lawrence, Mrs. M. Mitton, Mrs. L. Moore, Miss W. A. Saunders, Mrs. L. Wheeler

**Entertainment :**

*Chairman:* Mrs. E. Buckland
Miss M. Allen, Mrs. L. E. Angus-Hay, R. C. Buckland, T. A. Crawshaw, Mrs. A. Day, Miss E. M. Dunstan, Mrs. C. D. M. Goldie

**Visiting :**

*Chairman :* Mrs. E. Buckland
R. C. Buckland, Mrs. W. Chome

# Bournemouth Natural Science Society

## List of Members

*Revised to 31st October, 1979*

* Honorary Member
v Vice-President
† Past President
w Gilbert White Fellowship
l Life Member
a Associate Member

The year of election is given before the name of each member
Unless otherwise stated all addresses are in Bournemouth

| | | |
|---|---|---|
| 1974 | Adlard, Mrs. L. B. | 50 Seaward Avenue, BH6 3SH |
| 1975 | lAlderton, F. A. | 20 Ravenscourt Road |
| 1963 | *Allen, Miss M. | 174 Holdenhurst Road, BH8 8AS |
| 1971 | Allin, Mrs. J. M. | 14 Oakwood Road, Highcliffe |
| 1968 | Allington, Mrs. I. | 29 Colemere Gardens, Highcliffe |
| 1960 | Alsford, C. | 20 Church Road, Ferndown, BH22 9EU |
| 1960 | Alsford, Mrs. J. R. | " " |
| 1955 | Ambler, Mrs. A. | 13 Elgin Road, BH4 9NL |
| 1976 | Ames, Dr. G. H. H., M.R.C.S., L.R.C.P., L.D.S. | C13 San Remo Towers, Sea Road |
| 1968 | Ames, W. J. C. | 3 Rothesay Road, BH4 9NH |
| 1968 | Ames, Mrs. D. A. | " " |
| 1977 | Andrew, A., M.A. | F7 Pine Grange, Bath Road |
| 1978 | Andrew, Miss E. | 22 Tollard Court, West Hill Road |
| 1970 | Andrews, Mrs. A. | 41 James Road, Branksome, BH12 1EA |
| 1979 | Andrews, Mrs. S. C. M. | 157 Alexandra Road, Poole |
| 1970 | Angus-Hay, Mrs. L. E. | 9 Windermere Road, BH3 7LF |
| 1967 | lArnold, Mrs. M. | 1198 Christchurch Road, BH7 6DY |
| 1975 | Ash, Miss C. C. | 2 Pendennis, 7 Derby Road |
| 1975 | Athill, Col. G.J., M.B.E., F.L.W.S.P. | 5 Cresta Gardens, Ferndown, BH22 8LY |
| 1975 | Athill, Mrs. J. I. | " " |
| 1978 | Auld, Mrs. K. R. | 25 Ravenscourt Road |
| 1974 | Ayles, Mrs. N. | 6 Slavanka Court, 44 Belle Vue Road |
| 1974 | Ayton, D. J. | 201 Kinson Road, BH10 5HB |
| 1977 | Baker, Miss J. | 37 The Avenue, Moordown |
| 1962 | Balfour-Browne, Miss E. F. | Acorn Cottage, Station Road, Verwood |
| 1975 | Ball, Mrs. B. E. | 5a Aylesbury Road |
| 1977 | Ball, Miss B. M. | 25a Dingle Road |
| 1976 | Ballard, E. | 15 Buckingham Court, 12 Mount Pleasant Road, Poole |
| 1966 | Band, Mrs. M., M.A. | 5 Boscombe Cliff Road, BH5 1JL |
| 1970 | aBand, Miss E. | " " |
| 1967 | †vBanks, Sqd. Ldr. J. L. C. | Kingston, Dene Walk, Ferndown |
| 1974 | Barbirolli, Mrs. M. | 2 Chislehurst, Grosvenor Road, BH4 8BH |
| 1979 | Barrett, Miss M. | 1 Belmont Avenue |
| 1979 | Barnett, Miss L. M., B.A. | 26 Hartley Down, 60 Christchurch Road |
| 1971 | lBartram, T., F.N.I.M.R., F.R.S.H., F.H.A. | 6 Browning Avenue, BH5 1NN |
| 1978 | Bateson, Miss J. | 8 Meadow Court, Leigh Common, Wimborne |
| 1974 | Beale, J. M., M.A. | 71 Lake Drive, Poole, BH15 4LR |
| 1974 | Beale, Mrs. M. J. | " " |
| 1972 | Beckwith, W. E. | 8 Cranleigh Gardens, BH6 5LE |
| 1971 | Beckwith, Mrs. I. A. | " " |

| | | |
|---|---|---|
| 1974 | Bell, Miss D. H. | 19 Gainsborough Road, BH7 7BD |
| 1944*†v | Bell, T. M., B.A., M.B., B.CH. | 5a Stourwood Avenue, BH6 3PN |
| 1976A | Bell, F. G. T. | 32 Ravine Road |
| 1963*†v | Bennetts, Miss K. M., F.Z.S. | 29 Belle Vue Gardens, Belle Vue Road |
| 1978 | Bennett, Mrs. J. | 15 Mude Gardens, Mudeford |
| 1979 | Benson, Mrs. R. | 6 Moat Lane, Barton on Sea |
| 1947 | Berrill, Miss M. E. | 41a Cavendish Road, BH1 1RA |
| 1967 | Bettell, Miss I. M. | 4 Curzon Court, 11 Portarlington Road |
| 1972 | Birkinshaw, D. | 30 Lowther Road, BH8 8NG |
| 1975 | Blakeley, Dr. T. H., B.SC., PH.D. | 26 Avon Drive, Avon Castle, Ringwood |
| 1975 | Blakeley, Mrs. W. | ,, ,, |
| 1951 | LBlandford, Mrs. R. I. | B18 Elizabeth Court, Grove Road |
| 1979 | Blencowe, Miss E. J. | 11 Doveshill Crescent |
| 1971 | Bliss, J. W. | 9 Oak Close, West Parley, BH22 8UA |
| 1977 | Bloodworth, H. G. | 12 Gainsborough Road |
| 1964 | Blower, Miss M. | 32 Selkirk Close, Merley, Wimborne |
| 1978 | Bowler, F. C., B.SC. | 8a Overbury Road, Poole |
| 1967 | Bowers, Mrs. M. P. | 2 Wootton Court, Wootton Mount |
| 1979 | Bradley, Miss H., M.A. | c/o Exbourne Manor, 37 Christchurch Road |
| 1969 | Bray, W. A. | 234 Ringwood Road, Leigh Common, Wimborne, BH21 2DE |
| 1975 | Brazell, Mrs. M. | Surrey Lodge, 16 St. Winifreds Road |
| 1977 | Brazier, Miss B. | Holly Trees, Stoford Bottom, Salisbury |
| 1968 | Brazier, Miss M. A. | 4 Cedar Avenue, BH10 7EF |
| 1971 | Broadway, Mrs. V. M. | A23 San Remo Towers, Sea Road |
| 1970 | Brooks, J. L. | 7 Milton Road, Wimborne, BH21 1NY |
| 1970 | LBrooks, Miss M. M., PH.C., M.P.S., F.R.S.H., F.R.E.S. | ,, ,, |
| 1978 | Brotherton, Miss H. J. J.P., | 58 Pearce Avenue, Poole |
| 1966 | Brown, Miss R. W., B.A. | 11 St. Winifreds Court, 3 St. Winifreds Road, BH2 6NY |
| 1937(1967) | †vBrown, S. C. S., F.D.S., R.C.S., L.D.S. | 158 Harewood Avenue, BH7 7BG |
| 1962 | Brown, Miss V. C. | 9 Laverstock, Boscombe Cliff Road |
| 1973 | Buckland, R. C. | 127 Overcliff Drive, Southbourne |
| 1969 | Buckland, Mrs. E. | ,, ,, |
| 1971 | Burges, L. H. | 7 Wolverley Court, 31 Marlborough Road |
| 1971 | Burges, Mrs. E. | ,, ,, |
| 1977 | Burnard, C. L. | 8 Kimberley Close, Christchurch |
| 1977 | Burrows, Mrs. B. A. | 70 Redhill Drive |
| 1930 | Bury, Miss G. J. | 10 Rossley Close, Christchurch |
| 1973 | Butcher, Mrs. C. E. | 10 Victoria Gardens, Fordingbridge |
| 1977 | Butcher, Mrs. M. | 32 Dudsbury Avenue, Ferndown |
| 1977 | Butt, Mrs. J. M. | 6 Dingle Road |
| 1979 | Butters, Mrs. R. | D5, 35 Christchurch Road |
| 1967 | Cady, Mrs. L. | 108 Alexandra Road, Poole, BH14 9EP |
| 1979 | Campbell, Mrs. M. A. | 22 Cheam Road, Broadstone |
| 1964 | Cartwright, Miss D. E., M.B.E. | 31 Wistaria House, Redhill Drive |
| 1974 | Capper, Dr. K. R., PH.D., F.P.S. | 10 Kenilworth Court, Western Road, Poole |
| 1975 | Capper, Mrs. J., M.P.S. | ,, ,, |
| 1944(1950) | Chambers, Mrs. E. | 24 Cutlers Lane, Stubbington, Nr. Fareham |
| 1977 | Chaney, H. L., F.R.I.C.S., F.A.I. | 72 Parkstone Avenue, Poole |
| 1977 | Chaney, Mrs. I. | ,, ,, |
| 1974 | Channon, W. V. K. | 36 Studland Road, BH4 8JA |
| 1974 | Channon, Mrs. P. G. | ,, ,, |
| 1959 | Charter, Mrs. E. E. | Flat 3, 1 Cavendish Place, BH1 1RQ |
| 1942 | *Chomé, Mrs. W. | 3 Sandykeld, 26 Manor Road |
| 1968 | Clamp, Miss D. | 6 Hengistbury Road, Barton-on-Sea |
| 1974 | LClapton, Miss D. E. | 11 Gardens Court, 45 Surrey Road |
| 1976 | Clarke, Mrs. D. E. | 23 Victoria Gardens, Fordingbridge |
| 1977 | Clasby, P. S. | 12 Haglane Copse, Lymington |

| | | |
|---|---|---|
| 1963 | LClode, J. C. | 32 Western Road, Chandlers Ford |
| 1973 | Clode, Mrs. V. M. | " " |
| 1977 | Coates, Miss J., B.A. | 7 Surrey Lodge, 19 Surrey Road |
| 1977 | Coates, Miss L., B.A. | " " |
| 1958 | *Cocke, M. H. | St. Ives House, Horton Road, St. Ives, Ringwood |
| 1975 | Cole, Mrs. J. | 34 Little Forest Road |
| 1979 | Coles, Mrs. M. F. | 80 Blandford Road, Poole |
| 1972 | Collier, Miss D. | 12 Queenswood Avenue, Queens Park |
| 1971 | Collinson, Miss M. | 57 Stour Park, New Road |
| 1975 | Constant, Mrs. A. | 59 De Lisle Road, BH3 7NG |
| 1970 | Cooke, F. W. | 14 Meadow Close, Ferndown, BH22 8RN |
| 1941 | LCooper, Mrs. E. M. | B18 Elizabeth Court, Grove Road |
| 1975 | Cooper, T. | 20 Belfield Road, BH6 4JB |
| 1975 | Cooper, Mrs. K. M. | " " |
| 1976 | Copp, F. A., O.B.E. | 84 Brackendale Road |
| 1976 | Copp, Mrs. V. E. | " " |
| 1971 | Cotton, Dr. W. J., B.A., B.M., B.CH. | 37 Cedar Manor, 19/21 Poole Road, Poole |
| 1971 | Cotton, Mrs. K. | " " |
| 1972 | Cousins, Mrs. A. | 51a Newstead Road, BH6 3HL |
| 1978 | Cowan, Miss A. F. | 14 The Lawns, Waterford Road, Highcliffe |
| 1948 | *Cox, Mrs. E. D. | 248 Castle Lane, BH8 9TT |
| 1979 | Cox, G. E. | 248 Castle Lane West |
| 1979 | Cox, Mrs. M. | " " |
| 1956 | LCox, Miss M. G. E. | 4 The Maitlands, 8 Portarlington Road |
| 1973 | Crane, Mrs. R. C. | 9 Vinneys Close, Burton |
| 1973 | vCrawshaw, T. A., F.M.INST.M.C. | D4 Exbourne Manor, 37 Christchurch Rd. |
| 1972 | Crawshaw, Mrs. F. M. | " " |
| 1977 | Crompton, Mrs. J. E. | 148 Evering Avenue, Poole |
| 1977 | Croad, Mrs. H. S. | Rivercroft, Spetisbury, Blandford |
| 1975 | Curtis, Mrs. B. | 114 Cutlers Place, Wimborne |
| 1975 | Dain, F. | 111 Bader Road, Canford Heath, Poole |
| 1975 | Dain, Mrs. D. | " " |
| 1976 | Davis, Mrs. B. | 5 Athelney Court, 24 Grove Road |
| 1979 | Davis, Mrs. M. | D11 San Rmeo Towers, Sea Road |
| 1972 | Davis, Mrs. D. D. | 5 Marks Road, BH9 2XQ |
| 1972 | Davis, R. T. | " " |
| 1979 | Davis, Miss M. W. S. | 26 William Road |
| 1979 | Davies, Miss E. L. | 15 Amberley Court, Bath Road |
| 1979 | Davies, Dr. S. L., B.A. B.B.CH.B. | Royal Victoria Hospital |
| 1964 | Day, Mrs. A. | 15 Bosley Way, Christchurch, BH23 2HF |
| 1967 | Deacon, Miss M. G. K. | 42 Belmont Road, Poole, BH14 0DB |
| 1975 | Denison, Mrs. N. | 3 Braidley Mansions, Braidley Road |
| 1979 | Dick, Mrs. D. | 17A Seaward Avenue |
| 1975 | Dickinson, Mrs. H. M. | 9a Moorland Road |
| 1978 | Dixon, Miss D. M. | 26 Bourne Pines, Christchurch Road |
| 1978 | Doggett, Miss R. E. | 75 Downland Place, Canford Heath, Poole |
| 1977 | Dominy, J. N. | 52 Blakehill Crescent, Poole |
| 1977 | Dominy, Mrs. B. J. | " " |
| 1972 | Dolamore, Mrs. M. | 15 Dene Walk, Ferndown |
| 1973 | Donnelly, J. F. | 3 Buce Hayes Close, Highcliffe |
| 1978 | Down, Dr. W., B.A., PH.D. | 62 Huntly Road |
| 1973 | Down, Mrs. A. M. | " " |
| 1970 | Draper, G. S. | 44 Brackendale Road, BH8 9JA |
| 1970 | Draper, Mrs. O. G. | " " |
| 1961 | Draper, Mrs. G. | 45 St. Osmonds Road, Poole |
| 1979 | Dring, Miss F. | 25 Wortley Way, Ferndown |
| 1977 | Drover, E. C. | 28 Durdells Avenue |
| 1953 | Dudley, D. J. | 17 Widdicombe Avenue, Poole |
| 1955 | Dudley, Mrs. I. | " " |

| | | |
|---|---|---|
| 1972 | Dunfee, Miss E. G. | 5 Barton Drive, Barton-on-Sea |
| 1975 | Dunstan, Miss E. M. | 21b Alumhurst Road |
| 1978 | Eames, K. M., F.C.A. | 152 Cranleigh Road |
| 1978 | Eames, Mrs. I. L. | " " |
| 1967 | Earl, Mrs. J. C. | 10 Merrifield Drive, Broadstone |
| 1974 | Easterbrook, L. | 4 The Pines, 38 The Avenue, Poole |
| 1974 | Easterbrook, Mrs. F. P. | |
| 1979 | Eaton, W. A. | 9 Queens Park Avenue |
| 1979 | Eaton, Mrs. | " " |
| 1965 | V*Edwards, Brig. A. B. D., C.B.E., M.C. | 234 Burlington Hotel, BH5 1AD |
| 1979 | Edwards, H. L., A.M.INST.E. | 1 Crescent Court, The Crescent |
| 1979 | Edwards, Mrs. E. | " " |
| 1979 | Elgood, J. H., M.A. | 26 Walkford Way, Highcliffe |
| 1979 | Elgood, Mrs. M. L. | " " |
| 1963 | Elliott, Mrs. D. | 85 South Road, BH1 4PB |
| 1979 | Elliott, Miss M. | -7 The Grove, Christchurch |
| 1976 | Erskine, S. L. W., M.D., D.PH. | 16 Oakwood Road, Christchurch |
| 1976 | Erskine, Mrs. K. M. | " " |
| 1971 | Evans, J. T. | 5 Leven Avenue, BH4 9LH |
| 1976 | Farrell, Miss C. | 7 Fortescue Road |
| 1953 | LFarwell, Mrs. S. M. A. | Latch Farm, Fairmile, Christchurch |
| 1977 | Fewkes, Miss M. H. | 175 Belle Vue Road |
| 1965 | Fildes, Mrs. E. M. | 45 Wickfield Avenue, Christchurch |
| 1979 | Finch, S. E. | 53 Boscombe Overcliff Drive |
| 1979 | Finch, Mrs. J. V. | " " |
| 1976 | Fisher, G. | 36 Burnham Drive |
| 1976 | Fisher, Mrs. N. | " " |
| 1966 | Fitch, Miss E. N. | Queens Hotel, Meyrick Road |
| 1965 | Foley, Miss E. | 40 Barton Court Road, New Milton |
| 1973 | Follett, J. C. | 10a Stevenson Crescent, Poole |
| 1939(1954) | Follett, Mrs. V. | " " |
| 1975 | Ford, Mrs. J. | 43 Belle Vue Gardens, Belle Vue Road |
| 1979 | Forrest, L. G. | 30 Meyrick Court, St. Winifred's Road |
| 1970 | French, Mrs. H. M. | 1 Parkview, 16 Braidley Road |
| 1975 | Gardiner, J. A. | 49 St. Catherines Road, BH6 4AQ |
| 1978 | Gaston, A. E. | 21 Chessel Avenue |
| 1975 | Gemmell, J. | 16 Alexandra Road, BH6 5JA |
| 1975 | Gemmell, Mrs. D. J. | " " |
| 1974 | George, W. L. | 8 Glendale Close, Wimborne |
| 1974 | George, Mrs. J. | " " |
| 1979 | Gibbons, G. | 173A Stewart Road |
| 1977 | Gibson, Mrs. J. G., M.B.E. | 141 Burlington Hotel, Owls Road |
| 1972 | Gillett, Miss M. M. A. | 16 Talbot Avenue, BH3 7HX |
| 1963 | Goldie, Mrs. C. D. M. | 20 Balcombe Road, Poole |
| 1979 | Gordon, D. G., F.C.A., J.P. | 3 Thistlebarrow Road |
| 1977 | Grant, P. S., F.I.E.E. | 15 The Maltings, 43 Parkstone Road, Poole |
| 1977 | Grant, Mrs. F. M. | " " |
| 1953 | Gray, Miss E. | 44 Edmondsham House, Terrace Road |
| 1977 | Gray, Mrs. J. F., B.A. | 62 Dulsie Road |
| 1977 | Green, E. G. | 14 Jessop Road, Wimborne |
| 1977 | Green, Mrs. F. A. | " " |
| 1977 | Green, Mrs. W. | 12 Marsh Court, Clifton Road |
| 1979 | Greenwood, Mrs. A. M. | 200 Harewood Avenue |
| 1973 | Griffiths, Mrs. R. A. | C23 San Remo Towers, Sea Road, BH5 1JT |
| 1975 | Grossert, A. | Mainstone House, Romsey, SO5 0BA |
| 1973 | Gunter, Mrs. R. B. | 13 Annerley Road, BH1 3PG |
| 1978 | Guscott, W. J., C.ENG., F.I.E.E. | 7 Wick Lane |

| | | |
|---|---|---|
| 1978 | Hadfield, W., O.B.E., M.A., M.I.E.E. | Applegarth, Orchard Avenue, Windsor |
| 1971 | Hall, J. O. | 36 Keith Road, BH3 7DU |
| 1971 | Hall, Mrs. D. M. | " " |
| 1976 | Hall, K. | 2 Littledown Estate |
| 1978 | Hall, Mrs. M. | " " |
| 1975 | Hallam, Mrs. M. | 25 Darby's Lane, Poole |
| 1972 | Hanna, H. J. A. | 6 Cliffe Road, Barton-on-Sea |
| 1971 | Hanna, Mrs. K. A., M.A. | " " |
| 1972 | Harding, R. | 3 Porchester Place, BH8 8JS |
| 1976 | Hardy, W. | 1 Gorsecliff Court, 5 Boscombe Spa Road |
| 1976 | Hardy, Mrs. E. | " " |
| 1979 | Harper, Miss M. E. | 36 Mildenhall, West Cliff Road |
| 1978 | Harwood, R. E. | 10 Blakehill Crescent, Poole |
| 1978 | Harwood, Mrs. A. M. | " " |
| 1976 | Harris, Mrs. H. F. M. | 14 Wellington Road, Poole |
| 1976 | Hartwell, Miss E. I. | 32 Parley Road |
| 1961 | Harvey, Mrs. F. E., M.B., CH.B. | C21 San Remo Towers, Sea Road, BH5 1JT |
| 1964 | Hatton, R. H. S., M.A. | Pine Cottage, Lower Rowe, Holt |
| 1973 | Hayball, Miss G. | Flat 21/29–33 Bournemouth Road, Poole |
| 1978 | Hayes, Miss B. | 61 Evelyn Road |
| 1978 | Hayes, Miss E. | " " |
| 1969 | Hayter, Miss E. | 38 Edgehill Road, BH9 2PQ |
| 1972 | LHealey, Mrs. R. | 5 Leven Avenue, BH4 9LH |
| 1971 | Heaton, Mrs. M. I. | 8 Mayfair, 74 Westcliff Road, BH4 8BG |
| 1975 | Heath, G. W. | 3 Wyndham Road, Parkstone |
| 1975 | Heath, Mrs. M. R. | " " |
| 1979 | Hermon, L. | 4 St. Anthony's Road |
| 1979 | Hermon, Mrs. A. E. | " " |
| 1977 | Hight, Mrs. I. E. | 55 Rothesay Drive, Highcliffe |
| 1973 | Hilton, J. | 9 South Hill Grove, Harrow, Middx. |
| 1973 | Hilton, Miss M. L., B.SC., PH.D. | " " |
| 1962 | *Hipperson, Miss M. | 69 Headswell Avenue, BH10 6JZ |
| 1974 | Hoar, Miss K. | 159 Fairmile Road, Christchurch |
| 1979 | Hodgetts, Mrs. E. P. | 4D, 35 Christchurch Road |
| 1960 | *Holbrook, H. S., B.SC., C.ENG., F.I.E.E. | 49 St. Catherines Road |
| 1972 | Holder, F. H. | 105 Northfield Road, Ringwood |
| 1972 | Holder, Mrs. A. R. | " " |
| 1974 | Holmes, Mrs. H. N. | 4 Chepping Dene, 15 Wimborne Road |
| 1979 | Hook, Miss M. H. | 480 Charminster Road |
| 1961 | *LHooton-Smith, Mrs. B. E. | 4 Iddesleigh Road |
| 1978 | Hopwood, Mrs. J. | 44 Verwood Crescent |
| 1979 | Horley, Mrs. M. | 2 Waverley, 25 Grosvenor Road |
| 1979 | Hortop, J. R. | 1 Priory Gardens, Spetisbury |
| 1954 | *†VLHunt, Mrs. A. K. B.SC. | Flat 1, 5 Alton Road, Poole |
| 1975 | Jardine, Rev. D. E. C., M.A., DIP.THEOL. | St. Saviours Vicarage, Colemore Road |
| 1972 | Jarrold, Miss C. W. | 4 Stanley Court, Brunstead Road, Poole |
| 1945 | Jenkins, Miss P. | School Cottage, Hinton, Christchurch |
| 1976 | Jenkins, Miss C. | 1 The Links, Queens Park West Drive |
| 1978 | Jones, M. D. | 2 Earley Gate, Whiteknights Road, Reading |
| 1976 | Jordan, L. E. | 18 Braidley Road |
| 1976 | Jordan, Mrs. V. M. | " " |
| 1977 | Jordan, P. | 5 Rosemount Road |
| 1977 | AJordan, G. | " " |
| 1977 | AJordan, N. | " " |
| 1979 | Joseph, S. B. | 1/31 Knole Road |
| 1979 | Kemp, Mrs. D. F. | 68 The Avenue, Moordown |

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| 1970 | Kent, H. M., B.SC. | 62 Canberra Road, Christchurch |
| 1970 | Kent, Mrs. M. | " " |
| 1977 | Keohane, Mrs. C. M. | 16a Princess Court, Princess Road, Poole |
| 1968 | Kernot, Miss F. L. | 5 Queens Park Road, BH8 9BP |
| 1977 | Kirkpatrick, F. B. | 1 Beech Avenue |
| 1974 | Knight, G. | 40 Swanmore Road, BH7 6RD |
| 1974 | Knight, N. | " " |
| 1977 | Langford, H. H. C. | 17 Roi-Mar, Throop Road |
| 1979 | Lawrence, H. | 82 Wolverton Road |
| 1979 | Lawrence, Mrs. K. | " " |
| 1979 | Leapman, P. E., M.P.S. | 39 Manor Road |
| 1979 | Leapman, Mrs. P. G. | " " |
| 1970 | Ledger, A. L. | 7 Albemarle Road, BH3 7LZ |
| 1966 | v†Lee, W. H. | 18 Ravenshall, West Cliff Road, BH4 8AT |
| 1967 | Lee, Mrs. L. B. | " " |
| 1975 | Lees, R. G. | 25 Thornbury Road, BH6 4HS |
| 1976 | Lilly, G. W. | 78 St. Lukes Road |
| 1970 | Lilly, Mrs. P. | " " |
| 1975 | Lister, Dr. M., M.SC., PH.D. | 6 Katterns Close, Christchurch |
| 1979 | Lloyd, Miss E. W. | 7 Hengistbury Road |
| 1970 | Loader, Mrs. M. | 31 Arcadia Road, Christchurch |
| 1979 | Louwes, H. | 112 Admirals Walk, West Cliff Road |
| 1979 | Louwes, Mrs. E. B. | " " |
| 1977 | Loweth, Mrs. M. J. | 25 Footners Lane, Burton |
| 1934* | †vLowther, Miss D. M., B.SC. | 15 Mayfield Avenue, Poole |
| 1979 | Lowther, Mrs. E. | 15 Montague Road |
| 1979 | Luckett, N. L. | 10 St. Swithun's Road |
| 1976 | Lund, Mrs. M. S. | 8 William Road |
| 1969 | McAlpine, Miss G., B.A. | 10 Western Avenue, Barton-on-Sea |
| 1956 | McClay, H., M.S.M., A.C.I.I. | 6 Fountain Court, Durley Gardens |
| 1958 | McClay, Mrs. D. G. | " " |
| 1979 | McCormack, Mrs. P. | Flat 3, 13 Cavendish Road |
| 1974 | McMullin, Mrs. E. G. | E3 San Remo Towers, Sea Road |
| 1973 | Maddox, C. B. M. | 31 Egerton Road, BH8 9AY |
| 1956 | Maddox, Mrs. L. M. | " " |
| 1978 | Mann, C. W. | 9 Endfield Close, Christchurch |
| 1978 | Mann, Mrs. M. | " " |
| 1970 | Mansfield, Mrs. F. M. | 28 Barrie Road |
| 1977 | Marcroft, Mrs. R. M. | 4 Heatherlea Road |
| 1946 | Marshall, Miss D. | 76 Palace View, Bromley, Kent |
| 1978 | Martin, Mrs. D. | 30 Hull Road |
| 1975 | Martin, Miss H. F. | 16 Sandbourne Road |
| 1967 | Martin, F. B., F.C.I.I. | C25 San Remo Towers, Sea Road, BH5 1JT |
| 1979 | Mason, Mrs. P. M. | 51 Durrington Road |
| 1964 | LMasters, Miss K. F. | 10 West Way Close, West Way, BH9 3DR |
| 1978 | Mayer, F. A. | Teal Cottage, Windmill Lane, Ringwood |
| 1976 | Merchant, Miss J. M. | 4 Marlborough Court, Marlborough Road |
| 1973 | Merry, Mrs. H. E. | 10 Victoria Gardens, Fordingbridge |
| 1975 | Michael, T. N. | 13 Herberton Road |
| 1975 | Michael, Mrs. M. | " " |
| 1956 | Middlemast, A. H. | 86 Hengistbury Road, BH6 4DJ |
| 1964 | Middleton, W. J. | 74 Compton Avenue, Poole |
| 1979 | Millar, P. | 6 Bentley Road |
| 1979 | Millar, Mrs. P. | " " |
| 1976 | Mills, W. G. Q., M.B., B.CH., F.R.C.S. | 66 Blake Hill Crescent, Poole |
| 1959 | *Mitton, J. C. | 3 Gainsborough Road, BH7 7BD |
| 1970 | Mitton, Mrs. M. | " " |
| 1972 | Moore, W. H. | 13 Eldon Road, BH9 2RT |
| 1973 | Moore, Mrs. L. | " " |
| 1979 | Morris, Mrs. B. M. | 35 Keith Road |

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| 1973 | Morris, T. E. | Sandpit, Frogham Hill, Fordingbridge |
| 1973 | Morris, Mrs. J. F. | " " |
| 1975 | Munslow, Mrs. B. J. | 10 Belle Vue Road. |
| 1973 | Nash, G., M.A., F.R.A.S. | 3 Charmouth Grove, Poole |
| 1976 | Newton, Miss E. S. | 170 Harewood Avenue |
| 1974 | Nicklen, E. W. | 77 Holdenhurst Avenue, BH7 6RB |
| 1967 | Nicklen, Mrs. L. V. | " " |
| 1968 | Noll, Miss C. F. | 2 Pinecliff Avenue, BH6 3PZ |
| 1977 | North, Miss J. L. | 12 Littledown Avenue |
| 1977 | Norvall, Miss A. C. | 23 Exton Road |
| 1979 | Noyes, Mrs. M. I. | 40 Bourne Court, 44/46 Christchurch Road |
| 1979 | O'Connor, T. | 48 Knyveton Road |
| 1957 | Odell, Mrs. G. B. | 4 Barclay Mansions, St. Valerie Road |
| 1970 | Offen, E. C. | 4 Ranelagh Road, Highcliffe, Christchurch |
| 1970 | Offen, Mrs. M. J. | " " |
| 1950 | †vOgle, Miss U. M. | 2 Frankland Crescent, Poole |
| 1971 | †vOldham, F., J.P., M.A., B.SC., F.INST.P. | 19 Dingle Road, BH5 2DP |
| 1975 | O'Neill, Miss G. E. | 15 The Chantry, Madeira Road |
| 1979 | Osborn, G. H., B.SC., F.R.I.C., C.CHEM., A.M.INST.M.M. | Cherry Tree Cottage, Merley Ways, Wimborne |
| 1975 | Ottley, Miss M. C. | 7 Mount Heatherbank, Richmond Gardens |
| 1972 | Ottley, P. W., C.ENG., M.I.E.E. | 5 Webbs Close, Ashley Heath, Ringwood |
| 1979 | Pallett, Miss B. | 215 Sandbanks Road, Poole |
| 1979 | Palmer, Miss D. I. | 49 Columbia Road |
| 1970 | Parish, D. | 5 Venator Place, Munster Park, Wimborne |
| 1970 | Parish, Mrs. F. M. | " " |
| 1977 | Parkin, L. V. | 87 Portland Road |
| 1969 | LParkinson, J. G. | 45 Belle Vue Road, BH6 3DF |
| 1969 | LParkinson, Mrs. M. K. | " " |
| 1968 | Parsons, Miss M. W. | 3 St. Margarets, St. Valerie Road |
| 1971 | Pawson, Miss K. M. | 39 Queen Mary Avenue, BH9 1TT |
| 1963 | Payne, Miss H. I. | 83 St. Lukes Road, BH3 7LS |
| 1916 | *LPenrose, Miss F. | Little Picket, Hightown, Ringwood |
| 1963 | Perry, W. F., B.SC. | 117 Portland Road, BH9 1NG |
| 1953 | *Pickering, V. T. | Francesca, Hightown, Ringwood |
| 1977 | Plummer, Mrs. G. | 33 Branksome Hill Road |
| 1979 | Pollock, Mrs. J. | 57 Mount Pleasant Drive |
| 1966 | Poole, Mrs. I. | 23 Spur Hill Avenue, Poole |
| 1971 | Price, Miss E. | 9 Windemere Road, BH3 7LF |
| 1946(1967) | Prideaux, Miss C. | Upmoor, 28 Ravine Road, Poole |
| 1973 | Puckett, Mrs. M. | 47 Somerley Road, BH9 1EN |
| 1967 | Purdy, Mrs. K. M. | 158 York Road, Broadstone |
| 1976 | Purnell, Miss E. J. | 70 Belle Vue Gardens, Belle Vue Road |
| 1979 | Randall, Mrs. C. | 3 Redhill Close |
| 1975 | Ratcliffe, G. L., F.C.A. | 4 Woodland Avenue |
| 1975 | Ratcliffe, Mrs. M. N. | " " |
| 1978 | Read, Miss E. | 1 Villa Marina, 12 Boscombe Cliff Road |
| 1978 | Read, Miss M. S. | " " |
| 1951 | LRead, Mrs. H. A. | 15 Carbery Avenue, BH6 3LL |
| 1978 | Reed, Mrs. J. M. | 37 Braidley Road |
| 1979 | Renshaw, Mrs. M. E. | 5 Southwick Place |
| 1979 | Riddiough, Mrs. M. A. | 82 Wolverton Road |
| 1949 | Robertson, Mrs. M. | 41 Christchurch Road, BH1 3NS |

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| 1977 | Robins, W. O., A.R.I.C.S. | 85 Petersfield Road |
| 1979 | Robins, Mrs. F. V. | " " |
| 1967 | Rosemond, S. J., F.I.L. | c/o National Westminster Bank, 27 Old Christchurch Road |
| 1963 | LRossiter, Mrs. D. M. | 5 Park Homer Road, Colehill, Wimborne |
| 1970 | Rowe, Miss L. M. | 23 The Bluff, Headswell Crescent |
| 1978 | Russell, F. B. H. | Flat 3, 53 St. Catherines Road |
| 1978 | Russell, Mrs. M. E. | " " |
| 1967 | Russell-Cotes Art Gallery | East Cliff, Bournemouth |
| 1975 | Rust, Mrs. P. | 95 Holdenhurst Avenue, BH7 6RB |
| 1970 | LRuston, J. R. | Flat 1, 3 Moorland Road, BH1 3ST |
| 1977 | Sainty, Miss C. M., B.A. | 134 Castlemain Avenue |
| 1975 | LSaunders, Mrs. M. W. | 2 Memorial Homes, Castle Lane |
| 1954 | Saunders, Miss W. A. | 10 Duncliff Road, BH6 4LJ |
| 1970 | Scott, S. A. | 6 The Close, Charlton Marshall, Blandford |
| 1975 | Scott-Walker, J. | 18 St. Anthonys, 23 Westcliff Road |
| 1973 | Scott-Walker, Mrs. N. | " " |
| 1976 | Scutter, Mrs. L. M. | 12 Oakwood Road, Highcliffe |
| 1960 | *Sephton, Mrs. N., M.B., CH.B. | 1/4 Talbot Avenue, BH3 7HU |
| 1977 | Sevier, Miss C. L. | 11 Darracott Road |
| 1951 | Sewell, Mrs. I. | 4 Maunderville Crescent, Christchurch |
| 1977 | Shannon, Mrs. F. M. | 3 Surrey Gardens |
| 1976 | Shaw, Mrs. M. G. | 33 Oakwood Road, Highcliffe |
| 1977 | Sheldon, J. L. B.SC. | 53 Steepdene, Poole |
| 1979 | Sheperd, Miss N. | 2D, 35 Christchurch Road |
| 1971 | Sherrington, Miss D. | 57 Gladstone Road West, BH1 4HZ |
| 1968 | Shewell, Capt. A. V. | F10 Pine Grange, Bath Road |
| 1971 | Simmons, W. F. | 166 Shelbourne Road, BH8 8RA |
| 1971 | Simmons, Mrs. G. L. | " " |
| 1976 | Simmons, Miss I. | 4 Hampshire House, 37 Cavendish Road |
| 1979 | Slater, Mrs. S. C. | 152 Golf Links Road, Ferndown |
| 1970 | Smith, G. | 1 Beechwood Lodge, 24 Portarlington Road |
| 1970 | Smith, Mrs. G. M. | " " |
| 1979 | Smith, S. F. | 44 The Grove, Moordown |
| 1979 | Smith, Mrs. E. H. | " " |
| 1973 | Smith, Miss V. H. | 15 Belle Vue Gardens, Belle Vue Road |
| 1976 | Sorton, Mrs. A. L. E., B.A. | 5 Admirals Walk, Westcliff Road |
| 1975 | Souter, Miss E. E. | 1A The Croft, Warren Edge Road |
| 1971 | Southworth, T. C., O.B.E., B.SC. | 15 Chine Crescent Road, BH2 5LG |
| 1971 | Southworth, Mrs. N. K. G., M.A. | " " |
| 1976 | Sparkes, G., M.I.E.E. | 68 Clingan Road |
| 1976 | Sparkes, Mrs. M. | " " |
| 1979 | Spencer, Mrs. G. M. | 10 Admirals Walk, West Cliff Road |
| 1979 | Stanley, Mrs. V. N. | 13 Bourne Court, Bourne Avenue |
| 1976 | Starkey, Miss V. E. | C36 San Remo Towers, Sea Road |
| 1969 | Stephens, Mrs. G. B. | 24 Cavendish Road, BH1 1RF |
| 1976 | Stocker, Miss M., B.A. | 21 Amberley Court, Bath Road |
| 1973 | Stone, Miss M. G., B.A. | 134 Castlemain Avenue, BH6 5ER |
| 1967 | Strain, W. S., M.A. | 65 Farm Lane North, Barton-on-Sea |
| 1975 | Sutherland, A., F.L.A. | College Library, Wallisdown |
| 1979 | Taconis, Miss R. M. | 78 The Grove, Christchurch |
| 1955 | Taylor, Mrs. B. | 164 Belle Vue Road, BH6 3AH |
| 1979 | Taylor, Mrs. M. M. | 38 Hillbrow Road |
| 1967 | †vTeasdill, G., F.M.A., F.R.S.A., F.R.N.S., F.Z.S. | 99 Carbery Avenue, BH6 3LP |
| 1967 | Teasdill, Mrs. N. A. | " " |
| 1977 | Thomas, Mrs. S. | 106 Sopwith Crescent, Wimborne |
| 1965 | vThomas, W. C. | Flat D, Laverstock, Boscombe Cliff Road |
| 1965 | †vThomas, Mrs. G. M., M.A., B.LITT. | " " |

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| 1979 | Thomas, Mrs. W. P. | 92A Howeth Road |
| 1964 | Thorne, Mrs. M., B.A. | 2 Chestnut Avenue, Uddens Cross, Wimborne |
| 1970 | Tipper, Miss N. | 6 St. Michaels Flats, Cambridge Road |
| 1978 | Timms, Miss M. | 11 The Conifers, The Avenue, Poole |
| 1965 | Todd, Miss E. C. | Flat A, Pendennis, 7 Derby Road, BH1 3PU |
| 1976 | Tompkins, R. J. | 167 Richmond Park Road |
| 1975 | Towndrow, Mrs. I. | 4a Hankinson Road |
| 1973 | LTrevor-White, J. | 3/40 Tower Road, Poole |
| 1977 | Tuck, Mrs. L. K. | 18 Toft Mansions, Manor Road |
| 1976 | Upson, A. | 4 Ryan Close, Ferndown |
| 1976 | Upson, Mrs. O. | " " |
| 1977 | Wade, Rev. G. | 70 Flambard Avenue, Christchurch |
| 1977 | Wade, Mrs. A. | " " |
| 1974 | Wall, T. R. | 17 St. Mary's Road, Ferndown |
| 1961 | Wallace, Miss J. B., B.SC. | 10 St. Ives Park, Ringwood |
| 1979 | Wallis, P. J. | 23 Green Road |
| 1975 | Warren, D. H. E. | 145 Parkstone Avenue, Parkstone |
| 1976 | Watkins, W. | 12 Belle Vue Road |
| 1977 | Watson, F. R. | 79 Brackendale Road |
| 1976 | Watson, Comm., G. W., C.ENG., M.I.(MECH).E., F.I.R.A.S. | 17 Wimborne Road |
| 1976 | Watson, Mrs. H. M. | " " |
| 1977 | Webster, C. J. | 4 Chewton Common Road, Highcliffe |
| 1977 | Webster, Mrs. B. J. | " " |
| 1975 | Webster, Miss S. C., B.ED. | " " |
| 1979 | Westbrook, Mrs. S. | 15 Wheelers Lane, Bearwood |
| 1970 | LWheeler, H. P. | 47 Belle Vue Road, BH6 3DD |
| 1970 | LWheeler, Mrs. L. | " " |
| 1978 | Whitsed, W. J., F.R.S.A. | F2, Princes Gate, East Overcliff |
| 1979 | Whitsed, Mrs. B. L. | " " |
| 1976 | Williams, Mrs. H., B.A. | 5 Ravenscourt Road |
| 1977 | Williams, J. | 73 Wareham Road, Corfe Mullen, Wimborne |
| 1979 | Williams, J. | 16 Mildenhall, West Cliff Road |
| 1979 | Williams, Mrs. W. M. | " " |
| 1979 | Williams, Mrs. M. | 76 Huntly Road |
| 1977 | Williams, Mrs. M. R. | 102 Belle Vue Road |
| 1970 | Williams, R. | 62 The Avenue, Oak Tree Farm, St. Leonards |
| 1975 | Williams, Mrs. J. A. | 10 Blyth Close, Christchurch |
| 1972 | *Wilson, F. W., F.C.I.S. | 9 Pascoe Close, Poole |
| 1972 | Wilson, Mrs. E. M. | " " |
| 1977 | Winsland, D. C. | 17 Buce Hayes Close, Highcliffe |
| 1976 | LWinter, Mrs. A. R. | 10 Lakeside Road, Branksome Park |
| 1979 | Winter, Miss P. E., M.A. | 7 Broadway |
| 1979 | Winter, Miss R. H. D. | " |
| 1948 | Wood, Miss E. B., B.SC. | 4 New Park Road, BH6 5AB |
| 1971 | LWood, Mrs. D. L. | 6 Crofton Court, 37 Wellington Road |
| 1949 | *†vWray, Dr. D. A., M.A., PH.D., F.G.S. | 14 Grove Road, Barton-on-Sea |
| 1975 | LWrenn, G. | 99 The Avenue, Moordown |
| 1978 | York, Miss B. | 3 Bell Moor, 1 Portarlington Road |
| 1979 | Young, Miss H. M. | Flat 2, 22 Studland Road |
| 1977 | Young, Mrs. M. E., B.SC. | 67 Orchard Avenue, Poole |
| 1979 | Yuill, Mrs. T. O. | 15A Newstead Road |

## Obituaries

It is with deep regret that we have to announce that during the past year the following members have died (the figures in brackets is the year of joining the Society):—

Miss E. M. Whitaker (1924)
Mrs. V. W. Eaton (1953)
H. G. Griffiths (1967)
G. W. Lanigan (1972)
W. Watson (1972)
D. E. Merry (1973)
Mrs. E. Hawker (1951)
Mrs. R. Dyke (1969)
E. Chambers (1943)
W. H. Hunt (1957)

# Presidential Address

## The Debt of the Physical Sciences to the Arts

by T. A. CRAWSHAW, F.Inst.M.C.

Delivered before the Society on the 13th October, 1979

The title I have chosen for this address—The Debt of the Physical Sciences to the Arts—poses me with several problems. One problem is of scale: the Arts, Sciences and Technologies cover such an enormous canvas that one can hope to examine only a small portion. Another problem is of definition. What do I mean by "The Arts", by "Science", by "Technology"?

A phrase in a textbook I read as a boy made such an impression on me that I can still remember it, although I cannot quote the source: "Man finds himself placed in the Universe like an ant on a carpet; and by moving hither and thither he seeks to discern something of the pattern on that carpet". If not a definition, this is at least an indication of the nature of science.

Making a simplified review of the history of mankind, we see the emerging in prehistoric times of the arts; we see the making of primitive tools for utilitarian purposes, and the beginnings of what are to become the fine arts in the cave paintings devised for ritualistic and historical records. Thus two streams of activity—the utilitarian and the artistic—developed, often with no clear separation: early buildings may have served merely as a protection against the weather, but larger buildings for communal purposes employed skilled craftsmen to embellish them; household articles were made not only to perform their particular function, but to be elegant in appearance. Crafts came into existence, and each craft became a definite entity—the sculptor, the builder, the potter, the glass worker, the wire beater, the smith and the engineer. Along each separate path knowledge—now jealously guarded as trade secrets—was passed from one craftsman to his successor. But, while each craft progressed by a slow process of trial and error, very little interchange between the crafts took place, and evolution in one direction was seldom affected by progress in another field.

As the various crafts evolved, so Man's thinking about his environment progressed; he sought explanations of the things he experienced, he invented disciplines of thought, he became a philosopher. The seeds of science—so different to the plant it was later to become—were sown. The growth was a slow one. First, a system of logical deduction had to be established. Mathematics, which required only a means of writing for its expression, formed the basis of such a system. One remembers one's early struggles with Euclid, and the satisfaction of being able to write "Quod erat demonstrandum" on the rare occasions of success!

At the same time, knowledge of the universe accumulated. Man watched the stars, and realised there was order in the heavens; he noticed different rocks, and the effect upon them of fire and water; he saw pebbles, sand, dust and smoke, and speculated upon what was the smallest particle of matter that could exist—that could be "cut apart"—he thought of a sort of "atom".

But although knowledge advanced, and the 15th century art of printing began to be used for wider dissemination of this knowledge, the philosophers had no unifying concept of the nature of matter. Classification into groups such as Earth, Air, Fire and Water proved too vague to offer an explanation of phenomena such as light, oil of vitriol and bitumen. Astronomy was bemused with ideas of astrology; the alchemists were obsessed by the attempt to transmute base metals into gold, and the production of a universal solvent, and the early phlogiston theory clouded attempts to understand chemical reactions.

During the period up to about 1500, the arts had progressed enormously, constructional skills had reached a high degree of perfection, and a large volume of knowledge about the world accumulated. The astronomical theories of Copernicus about this time were followed a century later by the writings of Newton which postulated a mathematical theory of the solar system which could be tested by observation. There grew up a questioning philosophical mode of thought, in which it was sought first to obtain facts, then to advance an explanatory theory, and then to find out if the theory could be confirmed by further observations. The experimental system advocated by Francis Bacon in the 16th century began to be applied. Above all emerged an attitude of thought which attempted to be dispassionate and free from bias. When the Royal Society was founded in 1645, one of its early tasks was to examine the belief that if a chalk circle were drawn around a spider the creature would remain transfixed within it. The record of the experiment runs "straightway the spider ran away". I cannot help a mischievous speculation as to what such an august body might have made of the belief, commonly held today, that if you paint two yellow lines along the edge of a road motor cars will stay away!

With the founding of the Royal Society we enter an era in which there is considerable understanding of the laws of mechanics and a growing body of knowledge about the properties of matter; there is a lively interest in all natural phenomena, and above all, a desire to elucidate the laws which govern them by means of experiment. Philosophers wishing to experiment had at their disposal the skills of expert craftsmen, and a wealth of practical experience on which to draw. With ingenuity it was possible to make use of the arts developed for domestic purposes for the establishment of scientific facts. (Even quite recently, important experiments have been performed using apparatus embodying string, sealing-wax and biscuit tins). It became possible to answer questions such as "what happens when a gas is compressed?" by finding the exact relationship between the pressure and the volume.

The beginning of the 18th century heralds rapidly increasing knowledge and experimentation. This knowledge now began to be applied to the arts, and the arts became technologies. The technologies themselves interacted with one another, allowing new combinations which further advanced the ability to experiment. In our time the moon landings were only made possible by combining all the known skills and technologies.

It is my contention that, but for the existence and perfection of the arts, scientific discovery would have been stunted if not stifled altogether and I propose to bring forward a few instances of the way the arts have con-

tributed to the advance of knowledge, particularly with regard to the development of physical and chemical theory.

*THE ART OF THE GLASS WORKER*

Of the few arts which my time allows me to discuss, perhaps the art of the glass worker forms the best starting point, since glass is of ancient origin and had reached a high degree of perfection before the age of scientifically-designed experiment, and its development was largely uninfluenced by scientific knowledge.

Glass was probably discovered as a result of burning wood upon a sandy hearth; from the wood would come potash, which, if the fire were hot enough, could react with the silica to form a kind of glass. Glass beads were used to adorn Egyptian mummies, and glass making is thought to date back to about 1600 B.C. There were famous glass houses in Alexandria. Glass manufacture prospered under the Romans, and the Portland Vase is an example of Roman work of about 220 A.D. In England, Bede mentions sending for foreign workmen in about 700 A.D. to make windows for the monastery at Monkwearmouth, and in 1557 a factory was in operation at Crutched Friars in London making flint glass which had an addition of lead.

By a process of trial and error the various means of working glass—blowing and pressing—became established, and such arts as grinding and polishing the wares for purposes of decoration were evolved.

By blowing a cylindrical bottle, and drawing the ends apart whilst still hot, glass tubing of any desired size or thickness of wall could be made. From this tubing could be fabricated volumetric apparatus such as was used by Boyle to study the compressibility of gases, and a century later by Priestley in his studies of gas reactions.

Investigation of the proportions in which gases reacted revealed that these volumes were in simple ratios: for example, 2 volumes of hydrogen combined with 1 volume of oxygen to form water; 3 volumes of hydrogen combined with 1 volume of nitrogen to form ammonia; and 1 volume of chlorine combined with an equal volume of hydrogen to form hydrogen chloride.

About the end of the 17th century it was realised that some materials could be resolved into simpler ones, while some resisted all attempts to break them down. Thus the idea of a chemical element came into being, and as a corollary of this, the idea of the chemical compound, itself made up by combining elements in various ways. The discovery of the simple ratios in which gases combined admirably fitted this theory. It now became necessary to postulate two fundamental particles: one of an element, the other of a compound. Thus the idea of the Greek philosophers of an "atom" became the smallest particle of an element, and not the smallest particle of matter (which might be element or compound). The smallest particle of a compound which could retain the distinctive properties of that compound became known as a molecule. This means of assigning a mechanism to chemical reactions was later elaborated by Dalton in his atomic theory of 1803—a surprisingly short time ago!

It is difficult to imagine how these experiments could have been carried

out unless the art of working glass had been in the state it was. Here was a material, resistant to most chemicals, which could be formed into any desired shapes, and which allowed direct observation of the level of a confining liquid such as water or mercury. Today's instrument engineers think nothing of measuring the level of liquids in opaque metal vessels even under great pressures and high temperatures, but at the time of Priestley such devices had not been envisaged. Thus I assert that a most important step in the evolution of chemical theory would at least have been delayed in the absence of skill in glass working.

But other forms of glass working were to affect the course of science; the art of lens-making dates from Roman times—part of a spectacle lens was found in the Via Stabiana at Pompeii during recent excavations, and Roger Bacon, about 1250, describes a "plano-conves glass, useful to old men and those of weak sight".

The use of lenses singly, or in combination (telescopes and microscopes), enabled scientific observations of immense importance to be made. The astronomical observations of Galileo and Newton, and the observation of blood corpuscles under the microscope by Leeuwenhoek in 1668 were made possible. The pioneer bacteriological work of Pasteur would have been impossible without the invention of the microscope.

The arts of cutting, grinding and polishing which gave us lenses, also allowed the manufacture of the prism—a wedge-shaped block of glass which could split a narrow beam of light into its component colours: the spectrum. Spectral studies have given astronomers information on the chemical composition of the stars and about their velocities towards or away from the Earth.

It is true that today we have microscopes—such as the electron microscope—which do not use glass lenses; and we have other means, such as diffraction gratings of producing spectra, but much scientific progress would have been delayed had not the skill to make prisms not been at hand.

## *THE ART OF WEIGHING*

I now pass on to the art of weighing. Balances with arms of equal length, or steelyards with arms of unequal length have been in use since ancient times. A little mathematical knowledge of the theory of moments, coupled with mechanical skill, sufficed to make accurate instruments possible. Early balances had a beam of wood supported on a cord of silk at the centre and the pans were likewise suspended from the ends. Later, the arts of metal working, of jewel cutting and polishing were called into play, and balances were constructed having knife edges of steel or agate at the centre and at the ends. Instruments constructed in this fashion fulfilled the main criteria for accuracy: the distances between the knife edges could be adjusted to render the arms exactly equal in length; and the sharp edges resting on flat plates of hard material reduced friction to a negligible amount. To guard against the effect of draughts, balances were enclosed in glass-sided cases. The effect of buoyancy, due to the fact that the object being weighed and the weights themselves were "floating" in the surrounding air, became realised, and suitable corrections made. Thus, chemists had at their dis-

posal means of determining with considerable confidence the proportions in which various chemicals reacted.

A fact well known to the alchemists was that, if you heated metals such as lead or mercury they became coated with a powdery deposit, or "calx". They proposed the theory that when the metal was heated it lost something which was called "phlogiston". But when it was demonstrated that these metals actually gained in weight when heated, the phlogiston theory was hard put to explain this. It was even postulated that phlogiston had a negative weight! The work of Lavoisier and others showed that lead and mercury gained in weight by the absorption of oxygen from the air, forming metallic oxides. One obstructive error was thus removed from scientific thinking. Using the techniques of accurate weighing, it became possible to assign relative values to the weights of elements compared with the lightest element known—hydrogen. These relative weights became known as "atomic weights". In nearly all cases these weights were found to be whole numbers, or very nearly so, but studies of the compounds of chlorine gave a number 35.5. At first this was thought to be an experimental error, perhaps in the purity of the substances used or in the manner in which the experiments had been performed. Gradually, such doubts were eliminated, and after analyses had been performed by scientists in different countries, there was no retreat from the fact that the atomic weight of chlorine was 35.5. This raised the question: could chlorine be a true element? Was it a mixture? Could it even be a mixture of substances having the same chemical properties but different atomic weights—say 35 and 36? This speculation led to the conception of the isotope—elements having substantially the same chemical properties, but differing atomic weights. This idea has had a profound effect on thought about the structure of the atom—an idea which has been confirmed by further researches, particularly by the invention of the mass spectrograph, to which I will refer later.

Without accurate weighing, practically no scientific progress could have been achieved, and in this instance a substantial advance in thinking about the atom might have been missed.

*THE ART OF WIRE MAKING*

An art which, reaching a degree of perfection along its own lines and which, I hold, made a notable contribution to scientific knowledge, is the art of wire making.

The working of metals, particularly of gold and silver, was well advanced in Egypt. These metals could easily be beaten into sheets, and these sheets cut into strips; by hammering the strips until they were rounded, lengths of wire resulted. Wire formed in this way was often worked into jewellery and ornamental designs. This method of producing wire was time-consuming, and only comparatively short lengths could be made. During the reign of Elizabeth I, wire was manufactured in England from both brass and iron, and copper wire was made during the 17th century. Since wire was produced by hammering, the makers were known as wiresmiths. A new process, however, was introduced, and a mill for drawing wire was erected at Mortlake in 1663. In the drawing process, a bar of the metal formed by forging is pulled through a hole in a steel plate; this operation

can be repeated many times using successively smaller dies, with annealing stages between each drawing to ensure that the ductility of the metal is retained. In this way, practically unlimited lengths of wire of uniform diameter were made.

When Volta, in 1793, repeated the experiments of Galvani, who, as a result of dissecting the leg of a frog laid upon a copper plate by means of steel knife had discovered a sort of battery, he had no need to invent wire in order to connect his pieces of apparatus. Thus, in the absence of wire, we would not have had the "Galvanic pile"—the name Volta gave to his batteries.

By covering copper wire with silk to act as an insulator, it was possible to wind the wire into a coil which had interesting properties. If the coil were connected to a Galvanic Pile, or battery, it acted as a magnet, and would draw towards it particles of iron; it would also cause a compass needle to turn away from the north. By making the coil sufficiently large to accommodate a compass needle at its centre, and aligning the plane of the coil on a North-South axis, the first instrument for measuring an electric current was devised by Oerstedt, but he appropriately named the instrument a "Galvanometer". The gateway to knowledge of electricity was now open. In modern meters for measuring electric current, the whole conception is turned on its head: instead of a magnet turning within a coil, the coil is made to turn in the field of a fixed magnet.

Science, having achieved means for detecting and measuring electric current, set the scene for the classical experiments of Faraday in about 1813. Faraday showed that by pushing a magnetised iron bar into a coil of wire, a current was momentarily generated; if the bar were withdrawn, a current in the opposite direction was observed. These fundamental laws of electro-magnetic induction form the basis for all electrical theory, and enabled ultimately the production of the modern generator and electric motor.

Where would Faraday have been without wire?

*THE ART OF THE AIR PUMP*

Pumps for air or water, consisting of pistons working in cylinders, probably originated in Egypt. Hero of Alexandria described an air pump, attributing its invention to Ctesibus about 224 B.C. Air pumps can be used to increase or decrease pressure; and the ability to increase pressure forms the basis of this section.

In 1807, Gay-Lussac performed experiments in which he observed that when the pressure of a gas was released, a change in temperature took place. Hydrogen rose slightly, and carbon dioxide cooled perceptibly. This property of gases was investigated by Joule and Thomson about 1845, and it was found that, provided you started with the gas below a certain temperature, or above a certain pressure (depending on the gas), it would cool when allowed to expand. The theory proposed that provided the molecules of the gas were sufficiently close together to exert attraction to one another, cooling would take place on reduction of pressure. Sufficiently close proximity could be obtained either by cooling or by compression. This phenomenon laid the basis for refrigeration systems. In modern times

special substances—compounds of carbon, chlorine and fluorine—have been made which are very effective refrigerants when liquefied and then allowed to expand.

Linde devised an apparatus in which air was allowed to expand from a high pressure, becoming cooler; the cooled air emerging was used to cool further the incoming air. This progressive cooling produced such low temperatures—about 63 degrees absolute—that the air liquefied. The ability to liquefy air and distil it allowed the separation of oxygen from nitrogen on a large scale, an industry which is now essential to many manufactures, such as steel making. But of interest to the pure scientist was the separation from air of the so-called "Noble gases"—neon, argon, helium, crypton, xenon—which could now be prepared in reasonable amounts. By the use of helium and allowing it to boil, even lower temperatures could be attained—as low as 4 degrees absolute. At these extremely low temperatures, certain metals behaved in an anomalous way. For example, if a ring of lead was cooled to the temperature of boiling helium whilst in a magnetic field, a current could be induced in the ring by removing the field just as in Faraday's experiment; but instead of the current immediately dying away due to the resistance of the metal, it continued to flow indefinitely. The metal had become a perfect conductor! This superconductivity effect is a puzzling one, since, according to theory a metal should have no resistance at absolute zero; and yet at a temperature measurably above this, certain metals can become perfect conductors. Attempts are being made to utilise this effect, and I understand that a large electric motor whose field coils were cooled by liquid helium was installed at Fawley Power Station several years ago.

The alternative use of the air pump—to decrease pressure—brings us into the field of high vacuum. While the word vacuum is generally understood, the appellation "high" somewhat perversely refers to extremely low pressures—low in absolute terms, that is.

About 1650 Otto von Guericke of Magdeburg became interested in the subject of the vacuum, and considerably improved existing air pumps, culminating in the famous "Magdeburg hemispheres" experiment, in which opposing teams of horses were unable to pull apart the two halves of a hemisphere from which most of the air had been pumped.

As knowledge of the conditions required to produce a high vacuum advanced, means were devised to fulfil those conditions. A high vacuum is a space in which there are practically no molecules of gas or vapour. Substances like water vapour and hydrocarbons tend to adhere to the walls of a vessel, and become slowly released afterwards. It is also necessary to ensure that the whole apparatus—which may involve adjoining tubes and vessels—is completely airtight. Techniques of heating were used to dislodge molecules from the walls; oils and greases of low vapour pressure were developed for lubricating the pumps and for acting as seals; synthetic rubber rings which could be clamped between flanges improved the airtightness; and reciprocating pumps were replaced by rotating ones. A great advance was the invention of the diffusion pump. In this an oil, or sometimes mercury, is gently boiled giving a stream of molecules into which the molecules of the gases to be vacuated become entrained very much in the

way I expect my audience to be swept towards the door when the signal for tea is given!

Further improvements involved cooling parts of the apparatus with liquid air to prevent molecules diffusing back into the space. This is an example of the combination of technologies to which I referred in my introduction.

Given, then, an air-tight material such as glass, and a system of pumps it is possible to ensure that a space is practically devoid of any free-moving particles. In this space, any particle that is there can travel in a straight line without colliding with another. This combination of techniques enabled the investigation of passing electric currents through rarefied gases: the neon signs of today present an extension of the researches of Faraday and Crookes. The cathode-ray tube invented by Crookes proved capable of investigating events of very short duration or high frequency. The achievement of a high vacuum made possible the thermionic valve, an apparatus which could amplify very small electrical voltages and thus extend the range of knowledge of electrical phenomena, particularly in the field of electromagnetic radiation (Radio). As a tool for the construction of other apparatus, a highly evacuated chamber can be used to vaporise metals such as aluminium which will then deposit as a thin film upon adjacent surfaces. Very large chambers have been made for aluminising the surfaces of mirrors for astronomical telescopes.

But the most fundamental advance in scientific theory made possible by this technique is, in my opinion, the mass spectrograph developed by Aston between 1919 and 1927. In this apparatus, particles of chemical substances could be given electrical charges, and "fired" through a static electric field, and then through a magnetic field at right angles to their path. The magnetic field deflected the particles at different angles depending on their mass and charge; they would therefore impinge on different positions upon a photographic plate. It was thus possible to measure directly the masses of actual particles. Aston found that many of the so-called "elements" exhibited particles of different masses; that is, they were mixtures of substances with different atomic weights. In dealing with the art of weighing I referred to the mystery surrounding the atomic weight of chlorine—the most accurate chemical measurements gave a most obstinate figure of 35.5. The mystery was cleared up when it was confirmed by the mass spectrograph that it indeed was a mixture of elements having weights of 35 and 36 in nearly equal proportions. The concept of the "isotope"—elements having the same (iso) place (topos) in Mendeleef's periodic table, but having different atomic weights was confirmed. Slight differences in the properties of isotopes do exist, particularly in physical properties, and these differences have been used as a means of separation.

At this point, chemical theory has reached well-defined conclusions: we have the conception of an element, which has strictly defined chemical properties, although it is known that they may be mixtures, and thus the idea that elements could not be resolved has had to be modified to accommodate the idea of the isotope. We conceive the smallest part of an element capable of taking part in a chemical reaction as the atom, a part of its structure determining its chemical properties. We have the belief in a molecule, a small particle of a compound built up from the atoms of

elements variously combined; the atom itself, as a result of knowledge of the electrical properties of matter has been given by Nils Bohr the image of a miniature Copernican solar system in which electrons rotate in orbit around a central nucleus.

To stray into the field of atomic physics would be to enter the realms in which the arts themselves are so influenced by scientific knowledge that they become themselves the debtors, and would exceed the task I have set myself. I hope I have achieved my main purpose in emphasising the influence of the arts on early science.

## The 76th Report of Council for the year ending 30th September, 1979

The past year has maintained the high standard of lectures and field meetings in all branches of Science. Credit must be paid to the Chairmen of Sections for their choice of subjects, speakers, and leaders of field meetings, all of which have given considerable pleasure and enlightenment to members and also to a wider public.

It is invidious to name any person, but to Mrs. B. Taylor and her deputy Mrs. M. Saunders, special mention must be made of the many hours which they have devoted to cleaning, classifying and displaying the valuable collections of geological specimens. Beside this, she has arranged visits from schools; sixth formers from St. Peter's School, who were taking a special examination in Geology, and also a visit from students of the Open University.

The Society is fortunate in having unique collections in Geology, Archaeology, Egyptology and Zoology which we are proud to share with students and visitors of like interests. Reference books dealing with all branches are located in the two libraries, and lectures are illustrated by slides, some being the property of the Society, projected by Mr. J. Mitton and his colleague Mr. Crawshaw, and also Mr Hardy (cine).

Another successful Open Day was held on Wednesday, 26th September, to bring our Society and its activities to the notice of the public. Sixteen new members joined that day. Although Open Day is primarily to attract new members, it is also an occasion when the Chairmen of Sections are present to show and talk about their particular exhibits to members, who, by attending, show their appreciation of the hard work done by the Chairmen. The Society was well represented by the Press, to whom we extend thanks.

*Resignations*

Miss B. M. Ball resigned as Hon. Treasurer; Mr. R. Wall has taken over.

Mr. R. C. Buckland has resigned as Hon. Secretary; Mr. W. C. Thomas has taken over.

Miss G. Hayball resigned as Hon. Librarian; Captain R. E. Harwood has taken over.

Miss V. Smith has resigned as Hon. Editor; Mr. S. C. S. Brown has taken over.

Mrs. Earl resigned as Chairman of Members' Day; Mrs. Dickinson has taken over.

To these who have resigned our thanks are extended for their good work, and to those who have taken office we also express thanks and wish them success.

*Administration and Finance*

The onerous and very responsible position as Hon. Treasurer taken over by Mr. R. Wall is not lightly taken on. We trust that he knows he has the loyal support of his colleagues on the Finance and General Purposes Committee and members of the Council.

Much thought has been given to the matter of Insurance, and a new assessment has been made.

The building (or part of) has to be painted in 1980. Several estimates are sought. Large inflation increases in Gas, Electricity and Rates are also in the pipe-line.

Sincere thanks are extended to Chairmen of Sections, Hon. Editor, Hon. Programme Secretary, Librarians, Projectionists, Hon. Secretary and Hon. Deputy Secretary, Hon. Curator, Hon. Auditors, Fire Officer, Cine Programme Secretary, Press Officer, Welcoming Officer, and members who assist but wish to remain anonymous. To Chairmen and helpers of the following Committees: Tea, Garden, House, Entertainment, and Visiting Panel. All names are found elsewhere in the Proceedings.

*Personal*

It is inevitable that with the passing of time the names of some members will be erased from our list of members but not from our memories. An obituary list is found elsewhere.

Once again we have to thank Miss Penrose for the subscription for the Nature Magazine. A suitable letter of thanks was sent by the Chairman.

Mr. and Mrs. D. Parish have had their book "Wild Flowers" published.

The new Caretaker, Mrs. Garlinge, has settled down well, and it is hoped that she will be happy in her work for many years.

*Conclusion*

1980 will not be without difficulties, which must be faced realistically and with confidence, each member forging a strong link in the chain of membership. *K. Milner Bennetts, Chairman of Council.*

## Archaeology and History

The lectures given during this year covered a very wide field, and have on the whole been very well attended.

The opening talk on "The Maltese Islands in History" by the Chairman, dealt with their progress in various stages, from about 3500 B.C. to the present day. The islands have known many masters, owing to their important strategic position, and changes in occupation from the Phoenician to the Roman, Arab, Medieval and Spanish periods were briefly summarised. The Great Siege of 1565 which ended with the defeat of the Turks, and the settlement of the islands by the Knights of the Order of St. John of Jerusalem until Napoleonic times, were related in somewhat greater depth.

The lecture by Dr. W. H. Tattersall on "Fleeting visits to places of interest" demonstrated the development of civilisation from the earliest times until now. It was illustrated by slides depicting aspects of the "Ancient" world of Ephesus, Troy, Rome, Athens, Istanbul, etc., contrasted with the "new" world of such places as New York and San Francisco. Miss M. Stocker gave a lecture entitled "In the steps of the Crusaders" in December, in which she described the long overland journey of the First Crusade from France to Jerusalem, across difficult mountainous terrain with few roads. Her slides included examples from Nimes, Petra, Istanbul, Acre and Jerusalem.

In January, Mrs. B. Jarvis presented a 16 mm. film on Wedgwood pottery, which started with a £20,000 bid for a precious vase. After the film she chatted informally on "18th and 19th centuary Wedgwood" and displayed some 25 items from her valuable collection. This was followed in February by a talk on "Some Stately Homes in History" by the Chairman, with slides of some of the exterior and interior delights of Blenheim, Chartwell, Stourhead, Lacock, Forde Abbey, Stratfield Saye, Arundel, Petworth, Longleat and Montacute.

Our March lecture was by Mr. W. H. Lee on "Peking—Past and Present", which gave us an insight into the mysteries of the Forbidden City, with its 75 magnificent palaces. He also provided us with glimpses of the Great Wall of China, 2,000 miles in length, with its mountainous background bordering on to Mongolia.

Next we welcomed one of our past members, Mr. W. A. Stinton, who gave us a lecture "Down the Corridors of Time".

On May 9th a talk on "History in Stained Glass" was presented by Mr. H. L. Chaney, whose slides included the 28 beautiful windows at Fairford, with scenes from the Creation to the Crucifixion and beyond. Besides giving us examples from other churches, he also dealt extensively with heraldry.

The presentation of "The Holy Shroud of Turin" by Mr. Graham Teasdill, on June 20th, was something of an occasion, as his talk was followed by two showings of the film "The Silent Witness" to members of the Society in the afternoon, and to the public at large in the evening. In his address, Mr. Teasdill stressed that the subject was being investigated from a scientific viewpoint, the research involved embracing aspects of archaeology, botany, physics and chemistry. The response from the public at the evening performance was very encouraging, as all who attended seemed to be most impressed with the film and the way the Society presented it.

Finally, in September, we were privileged to entertain Mrs. M. R. Stone who provided us with an account of "The New Archaeological Gallery at Scaplen's Court, Poole", which it is hoped will be opened in April next year. Her slides illustrated not only the care taken in the reconstruction of buildings, and the conservation of historic sites but also the efforts made to stimulate the interests of young people in the services provided by the museums.

The Section enjoyed three successful excursions during the year. In October Mr. John Forster conducted a party of us round Christchurch

Priory with his usual enthusiasm. On June 5th, Mr. Dick Watton guided us on an instructive walkabout visiting places of historic interest in Southampton, whilst on July 11th we enjoyed an outing to Forde Abbey and Sherborne Abbey. *W. V. K. Channon, Chairman.*

## Astronomy

There were four lectures in the course of the year. In the first one on November 11th, 1978, Adrian Owen gave an illustrated talk about lunar and planetary observations. He explained the cause of lunar and solar eclipses and showed slides of the total eclipse which he and the chairman had seen in the Sahara desert. He then demonstrated the observational effects of both full and grazing occultations of stars by the moon. The lecturer has spent much of his observing time on the fascinating eclipses, occultations and transits of Jupiter's satellites around the planet. These phenomena he explained. He finally discussed the new findings about the planets of the solar system, including the discovery of the ring system of Uranus made in 1977.

The second lecture was on December 30th, 1978, by Colin Pither. The subject was Planetary Exploration with Filters. The lecturer drew upon his great observational experience to illustrate the use of colour filters in order to enhance the detail visible in planetary discs to the earth-bound observer. He demonstrated the "Moon blink" for observing TLP's—Transient Lunar Phenomena. Generally speaking, blue filters show up a planet's atmosphere, while red filters enable one to probe deeper.

On January 13th, 1979, the chairman gave a talk on relativity. This was to commemorate the birth of Albert Einstein, the creator of relativity. His life and works were discussed and the nature of his radical ideas were outlined. Much of modern physics and astronomy are based on the work of this great man.

Finally, on March 24th, Geoffrey Kirby gave a profusely illustrated talk about artificial Earth satellites. His lucid and informative lecture was greatly appreciated by the audience. He showed how all satellites will eventually fall back to earth, however high they were originally. The great wealth of scientific knowledge and understanding derived from satellite observations was clearly shown. In conclusion the lecturer showed how accurate observations could be made by amateurs such as himself.

*Graeme Nash, Chairman.*

## Botany

This section has been fortunate in lectures again this year. In October, Mrs. A. K. Hunt, one of our Honorary Members and a Past President, gave us a lecture on the "Flora of East Africa". She had known East Africa when it took a month to travel to Mombasa along roads which were either red dust or red quagmire according to the season. We were taken through the flora of the plains and up to the mountainous regions. The lecture was illustrated by slides showing many interesting and unusual plants.

In December, Mr. R. Shepherd of Weymouth came to the Society, bringing his own "cine" equipment. His lecture was titled "High Summer and Season of Change". This was a most stimulating lecture, highlighted all the way through with anecdotes pertaining to the film. In January, Mr. S. C. S. Brown, another Past President, delivered a lecture on "Some Alpine Plants in Cultivation". He described the evolution of the English garden, from the large formal ones like Hampton Court to the manor house and cottage garden. The lecture was illustrated by slides. In February, Dr. T. Norman gave a lecture on "Mediterranean Orchids". This was ably supported by his wife's photography. In March, Sqd. Ldr. J. L. C. Banks, a Past President, delivered a lecture, illustrated by many slides, on "British Wild Orchids". In April, we had a visit from Mr. C. E. Peppin, who showed us a variety of slides on "Heathland Flowers". He mentioned the localities where we could hope to find them. In May, Miss Nelson gave a lecture entitled "Country Calendar", which was supported by many slides. She started with a winter scene and followed through the year. In June, Sqd. Ldr. Banks delivered a lecture on "European Alpine Flora". This was illustrated by slides. He explained some of the difficulties of photography at high altitudes.

In July, we had the pleasure of the company of Mr. John Lavender, of the Red House Museum, Christchurch. His lecture was entitled "Trees of Wessex". The Field Meetings have been at Canford Heath, Studland, the New Forest, Durlston Head, Ulwell, Spetisbury and Corfe Castle. All were well attended. Mr. R. G. Lees had been a great help as deputy leader. With his wide knowledge and delightful manner he has made the outings extremely interesting, and I am most grateful to him.

In November we visited Upton Park and were taken over the house by Mr. Parish, and around the grounds by Mr. Lockwood of Poole Park and Mr. Hadfield of Upton Park. We then adjourned to the Poole Park Nurseries, where we were shown over the "houses" by Mr. Lockwood. In June the Botanical and Ornithological sections had a coach outing to the Queen Elizabeth County Park.

On June 30th, Mrs. M. Saunders and myself took a party around Binden Hill and Mupe Bay. We were able to go down the cliffs and to see the "Fossilized Forest" and several other geological features.

*D. L. Dain, Chairman.*

## General

In his talk on "Reminiscences of Some Other Museums", Mr. G. Teasdill laid emphasis on early methods of local transport, aspects of museum architecture, such as the introduction of false walls and windows to increase size and elevation, and a better presentation of exhibits.

A "Himalayan Trek" was described by Mrs. J. F. Gray. One of her camps on the plain of Pokhara, by the river Seti, tropical vegetation included orange and banana trees. From flat country extending for 50 miles rose the fantastic peaks of the Annapurna range. The Macha Puchare Mountain, meaning "fish-tail", because of its resemblance to that creature, was enlivened by poinsettias and magnolias.

A visit to the Royal Mews, Buckingham Palace, to view the horses, their ceremonial harnesses, coaches used for various functions, and the liveries worn for state and semi-state occasions. A groom mentioned that no chestnuts have been used as harness horses. Dun, cream, black, bay and grey have been used by the Sovereign since the time of George II. The bays are predominately Cleveland, but most famous are the Windsor greys which draw the Queen's carriages. No visit would be complete without a look at the gold State Coach.

Marwell Zoological Park is one of the zoos which has an excellent breeding record, being successful with scimitar horned oryx, nyala, Przewalski (Mongolian) horses and Grevy's zebra. Three foals were born on the day prior to our visit on 23 May. Among the large cats the Siberian tigers, leopards, snow leopards and cheetah were in good condition. Great publicity was gained by the unfortunate and untimely death of Victor the giraffe, but his posthumous daughter Victoria, was on show.

The following are excerpts from the lecture "Gleanings from British Columbia".

We crossed from Vancouver to Vancouver Island by the ferry-boat "Esquimalt" to visit Victoria's Buchart Gardens, which provided a breathtaking panorama of colour. The ferry trip from Kelsey Bay to Prince Rupert through Queen Charlotte Islands provided much of interest, particularly Alert Bay, a wealthy fishing township famous for its totem poles and settlement of the Kwakuitl people. Captain James Cook visited it in April 1778. Totem poles have no religious significance, neither are they of great antiquity, but depict episodes in the life of the head of the family. They could be likened to a European coat of arms.

After disembarking at Prince Rupert we joined the Greyhound coach en route for the Rocky Mountains, where we anticipated seeing some of the flora and fauna. Mt. Robson National Park has the highest mountain (3954 m.) where mountain goats are fairly common. The road through the Columbian Mountains provided our only near sighting of a big-horn mountain ram; its huge horns curve into a near circle. A three mile expedition on a snow-mobile on the Athabaska glacier was cancelled becouse of atrocious weather conditions. From the lake fantastic "glacier" scapes were captured on film. Near Cache Creek the Indian paint brush plant was plentiful. It is a favourite food of bears, but time did not permit us to track them. In the Columbrian Mountains area, growing above the tree line, was the habitat of fringed gentians. Moose often fed on water plants in swampy areas beside the Bow River. In several small lakes beaver dams and lodges were plainly seen. Pink monkey flowers grew by the side of Lakes Emerald and Louise. By the roadside an elk and her calf were feeding, and skulking among conifers was a large bull elk. In another plantation there was a small herd of buffalo consisting of a huge bull and seven cows.

In 1973, Alexander MacKenzie, at 30 years old, became the first white man to cross the continent by land. His first attempt led to the route of the Arctic Ocean and the river which bears his name. In 1809, Simon Fraser almost succeeded in following the river named after him from the source to the mouth, but was deterred by hostile Indians. Subsequent events

proved it unnavigable. In London consideration was given to a coast-to-coast railroad, but a stipulation was made that it must lie in British territory. The engineer Palliser was entrusted to explore that possibility, which later became the basis for the Canadian Pacific Railway. In 1882, three years before the railroad was completed, Major Rogers discovered a way by which the railroad could continue over the most difficult part of the Selkirk Mountains. The last spike was driven in on 7 November 1885. when east was linked to west.

Miss Sally Webster spoke about some of her experiences "Under Canvas Around Jordan" on an expedition to Jordan starting from Amman and continuing to the south of the Dead Sea, 1000 feet below sea level. A few days were spent in and around Amman, after which transport took her into the desert where temperatures were near 150 degrees fahrenheit. She found the Bedouins hospitable, and after a few days she managed to drink the numerous cups of thick, fatty and sweet tea offered by her hosts. To have refused would have been an insult. The Bedouins have large herds of black, long-legged goats, the skins of which are put to many uses.

Jordan is not a wealthy country, but Miss Webster said that it was hoped that by introducing irrigation systems, citrus and other crops could be grown. Some areas had natural springs and date palms were plentiful.

Other places visited included Mt. Nebo, where a small, white house is reputed to have been where Moses ascended to view the "Promised Land".

*K. M. Bennetts, Chairman*

## Geography

Having agreed to take over this Section following Miss Exton's resignation, my main object has been to do more field work, as geography is no longer taught solely in the classroom, and to involve the members more. Other than myself, five members gave lectures and two led field outings.

*Lectures*

Lectures by members included an interesting talk by Mr. F. Oldham on "Anglesey". The lecturer gave us a very clear picture of the island with Telford's masterpiece—the Menai Suspension Bridge—Beaumaris Castle, and the quaint villages and secluded beaches.

Mrs. Arnold took us on another of her popular trips to Canada, the venue this time being Western Canada and the area between the Rocky Mountains and Vancouver.

Miss Pawson showed how extensive was her knowledge of Verwood. Her talk, "Old and New Verwood", showed the many changes that had taken place in what was once a country village, but is not becoming rapidly urbanised.

Mr. H. L. Chaney gave the first of two instalments on "The Isles of Scilly", covering the island of St. Mary's and the bustling harbour of Hugh Town, also the magnificent rugged coast and the island's fortifications.

Mr. H. L. Edwards also gave the first of two instalments on Southern Australia entitled "Down Under", the area covered being Perth, Adelaide and Canberra.

Our first visiting lecturer was Mr. Huntingdon, area manager of the Wessex Water Authority, his subject being "Sewage disposal dilemma for Bournemouth", when he put us fully in the picture as to how a sewage plant worked and the town's problems with old pipes and overloading in the holiday season.

Another very topical lecture was that given by Miss M. E. Dennis, assistant regional officer for the Nature Conservancy Council at Arne. Her talk entitled "Some ecological considerations of the development of an oilfield" dealt with existing and proposed oilfields in the Poole Harbour area and the necessity to get full co-operation from the oil companies in the preservation of wild life.

Other lecturers included Col. Hemsley who gave a comprehensive illustrated talk on "South Africa, her scenery and recent history"; Mr. Alan Horton on "Discovering Dorset"; and Miss C. Chapman and Miss Stock with their lecture "Places associated with Thomas Hardy". They had made a very extensive study of their subject and we learnt a lot about the authors books and the identity of the place names.

Finally, I myself gave two lectures: "Five Rivers to Salisbury" covering the river valleys of the Ebble, Nadder, Wylye, Avon and Bourne; also "The charm of the English village".

*Field Outings*

A series of three morning outings on foot covering the lower Stour Valley proved very popular. These were Iford—Throop, Throop—West Parley and West Parley—Hampreston, the first led by Mrs. Robins and the other two by myself.

Mr. F. Watson led a limited party of twenty to the Ordnance Survey at Maybank, Southampton. As many who wanted to go were disappointed owing to the limit, a further trip is being arranged.

Urban geography projects included Romsey led by myself, and Wimborne led by Mrs. Robins.

Another popular outing was to Worth Matravers and the stone quarries of Seacombe Ledge and Dancing Ledge, returning via Priests Way to inspect surface quarry workings.

Finally, the year was completed with an exceptionally well supported visit to the upper Itchen Valley, including stops at Cheriton, Alresford and Itchen Stoke.

*W. O. Robins, Chairman*

## Geology

The geology section started its winter session with an informal meeting of interested members to study the specimens in our museum. These meetings were continued monthly during the winter season. Mrs. M. Saunders, as deputy chairman, and the chairman completed the arrangement of the fossils in our collection. The specimens which had no labels were taken to the Geological Museum, London, where they were correctly labelled. This help was much appreciated. With the permission of the Charities' Commission a few of our duplicates in the many collections of

Barton Fossils were given to a past member, Mr. Stinton. He will be table to make use of them for educational purposes. Dr. Blakeley helped with the labelling of the Hydrocarbons in the Woodhouse Collection.

Dr. Blakeley gave the first lecture of the season on coal and its geological importance. In October the Chairman gave a second lecture on Earth Sciences, followed in January by a lecture on The Early Geological History of England, illustrated by diagrams and maps shown on an overhead projector. Mrs. Hall lectured on Petroleum Geology of the North Sea.

Mr. John Lavender, the Curator of the Red House Museum in Christchurch, gave two lectures, one on the granites and rocks of Dartmoor, and a second entitled "Elephants Were Here". He discussed the fossils of the Eocene period sixty to forty million years ago, when the climate of the Hampshire Basin was tropical and elephants roamed about the district. He brought an elephant's tusk newly discovered in this area. Also exhibited were specimens from the Society's own collection. He went on to talk about the Pleistocene period 3 m.y.a. when the climate was arctic during the four glacial periods. Slides were shown to illustrate the effect of the perma-frost on the beds laid down in the Eocene period.

Mr. W. H. Lee gave a lecture on the Grand Canyon of America. His slides depicting the lower and older strata, crumpled by the earth's movements in that continent, and also slides of the flat, stable areas of about 400 m.y.a.

The Chairman spoke on Dr. Wray and showed his slides of diamond mines in Brazil and in Kimberley. Some of his slides dated back to the start of the Kimberley mines in the 1880's. These were of historical interest. Mrs. Saunders spoke of the geology of the area east of Lulworth Cove relative to the field day on June 30th, mentioning the Jurassic and Cretaceous fossils.

Our first field meeting was to Peveril Point where the Purbeck rocks are exposed. These are the last deposits of the Jurassic era, 195-190 m.y.a., the remainder of England being above sea level. The Purbeck rocks were deposited in a fresh-water delta and contain fossils *Cyrena, Viviparus* and *Unio* spp. These beds are folded into a W shape and run out into the sea for 15.5 Km. A good sample of fibrous calcite or "beef" with selenite was seen. This stone when polished is known commercially as Purbeck Marble.

Abundant chalk-loving flowers are found on the cliffs and on Bindon Hill, from which the view to the east was of the coastline from St. Alban's Head to Gad Cliff—the entire Kimmeridge out-crop of east Dorset. After traversing the chalk ridge, the Wealden Valley was crossed and the walk continued to Mupe Bay. This bay is bordered by the harded rocks of the Worbarrow Tout and the Mupe rocks. Bacon Hole, a smuggler's cave, has cliffs showing the best exposure of the sequence of strata from the Wealden clay to Portland stone. The walk continued along the Range Walk cliff-top path to Lulworth Cove, passing on the way the "Fossil Forest" on the ledge below. This view overlooks the tufa encrusted boles of the 150 million years-old conifers.

Our visit to Hengistbury Head revealed a small landslide at the Mudeford end of the headland. The party was able to study the Bourne Hill terraces

with their contrasting layers of sand and to see the iron workings of past ages.

On July 20th the following fossils were examined by members at Barton Cliffs: —

Lamellibranchs—*Crassatell, Unis, Charma.*
Gastropods—*Turitella, Arithium, Volutosspina.*
Scaphopod—*Antelis.*
Teeth of Fish—*Ondontaspis.*

It was not possible to place these fossils in their respective layers owing to the slumping of the cliffs.

During the year visits were made to the museum, including a party from a middle school from London, sixth-formers from St. Peter's School, who were taking a special course in geology, and several students of the Open University.

Finally, I wish to thank those who have helped and advised me in many ways to make the geology section a success.

*Beryl Taylor, Chairman*

## Physics and Chemistry

The first lecture, in October, was distinguished by the presence of Professor H. H. Hopkins, F.R.S., who lectured on the subject of "Optics in Clinical Medicine". An authority on optics who has been responsible for great advances in lens design, Professor Hopkins showed how light could be "conducted" along a fibre made of glass coated with a thin outer film of glass of a different refractive index. The result was total reflection along the whole length with but little loss of light. Such fibres could be used to illuminate the cavities of the body; and bundles of fibres could be made which would allow actual examination of the cavity. These bundles were sufficiently flexible to accommodate any curves which might require circumvention. Examples of this type of apparatus were demonstrated.

Mr. P. E. Richmond chose as his subject for the February lecture "Energy Futures for Britain", and discussed the future needs of the country and the possible sources from which energy could be derived. A strategy of all development of all sources, coupled with a policy of ensuring efficient use, would seem the most promising.

January snow prevented many members from attending the lecture by Mr. W. A. Stinton on "Humphry Davy", and he was good enough to repeat it again in April. Mr. Stinton—himself a Cornishman from Penzance—traced the life of a man deeply affected by nature, who, in spite of humble beginnings, advanced our knowledge of chemistry, particularly the chemistry of gases, and performed experiments in electro-chemistry discovering metals which had not previously been obtained in any quantity.

An entirely different note was struck by a lecture on "Military Bridging" by Mr. E. Longbottom, formerly of the Military Engineering Experimental Establishment at Christchurch. By means of slides and films he demonstrated the strides made by military engineers in meeting the requirements for bridges which could be erected in a very short time under apparently impossible conditions.

A well-attended visit to the Alderney Water Works formed a feature of the February period. By courtesy of the Bournemouth and District Water Company, we were shown round the plants for pumping and purification, and given an instructive talk on how the water comes into our homes.

Dr. T. H. Blakeley took us to Queensland in his lecture "Sugar and Scenery in Queensland", and combined instructive information about the way in which sugar is grown, harvested and refined, with a tour of parts of Australia not usually included in the guide-books.

In May, Mr. A. V. Cook of the Bournemouth Telephone Service took us through a short history of the telephone from Bell's first words in 1876, and gave much information about the growth of the telephone service, and projected developments. The discussion provided an opportunity for members to ventilate their particular problems and hear the ways in which they are being overcome.

Once again it is a pleasure to offer our thanks to those who have devoted their time to giving us the benefit of their knowledge. I am delighted to announce that Dr. T. H. Blakeley is to take over the Chairmanship of the Physics and Chemistry section. He is well known to members both as a lecturer and as a friend, and I anticipate a very successful future under his direction.

*T. A. Crawshaw, Chairman*

## Zoology—Entomology

The winter temperatures were below the average of recent years during 1978-79. Subsequently, the emergence of Insecta from their dormant state was delayed by a fortnight. This trend continued until the end of June. There was no noticeable increase in aberration among Lepidoptera as is often the case after severe winters, as in 1917. The writer did not leave the area for any length of time this summer and decided to undertake a project to check the current status of the "Dragonfly", *Oxygastra curtisii* (Dale), which had not been recorded in the area for about 30 years. He was assisted by some ten helpers of the B.N.Sc. This species, bred formerly in the Pokesdown and Hurn areas. It was "on the wing" from about the last week of June until about mid-July. Normally it flew over the heathy areas and about birch and conifer clumps near its breeding sites, thought to be alkaline streams of low gradient. The team searched intensively the Moors river from near its source until its junction with the River Stour, near Hurn; additionally, all areas where it was recorded as flying formerly. Our conclusion is that the species is probably now extinct in its former haunts in this area.

This season the sections field outings were very successful, "highlights" being the close observation in the wild of both sexes of *A. iris* (which was photographed), *Urocerus gigas* ovipositing (photographed by Miss Brooks). The parasite of the latter, *Rhyssa persuasoria* was also photographed. A specimen of a "Snakefly", Order Neuroptera, sub-order Megaloptera was seen. A member kindly noted for us a mature nest of *V. germanica* suspended from the inside of her dog-kennel and which was photographed. Several specimens of *V. crabro* were noted from our area, including a

female seeking hibernation. A single male specimen of *Gryllotalpa gryllotalpa* (Mole Cricket) "came to light" in Ferndown. Successful photographs were obtained of *A. comma* during one of the field outings. Specimens of both *Aeshna juncea* and *A. cyanea* were positively identified during the last week of October. Actual pairings of *A. mixta* were noted at Sowley Lake; also a pair "in cop" of *I. pumilio* during September.

*Sqdn. Ldr. J. L. C. Banks, Chairman*

## Zoology—Mammalia and Natural History

The Natural History section under the leadership of Mr. R. G. Lees has been a great success, in no small measure due to his enthusiasm and knowledge. To him we are indebted. We also wish to thank those members who have led expeditions and whose names appear elsewhere; in particular Mrs. M. Arnold, my deputy.

The New Forest, Hengistbury Head and Dorset have been the chief venues. The "pond dipping" meeting on 19 May produced several interesting specimens including *Spongilla,* a fly larva; *Asellus,* water lice; *Daphna diaptinus, Dytiscus marginalis,* water beetle; *Keratella quadrata,* a rotifer. There were fewer specimens than on previous years, but added interest was afforded by examining specimens microscopically under the direction of Dr. Bell.

Deer. As part of a deer study, Bolderwood sanctuary was visited. Of particular interest was the colour contrast of the pelage of the menil fallow with that of the common fallow. Lighter in body colour, smaller, darker and more numerous spots, brown dorsal stripe extending down the white tail and pinkish antler velvet. More menil, the fallow which retain their spotted coats throughout the year, have been recorded. On 7 November one white buck had a harem of 7 does, our first record of this. More roe deer and their activities have been noted especially in March, the time of year when they are in hard horn (antler) and territory is being marked out.

*1978 Lectures*

Miss M. M. Brooks spoke on many aspects of the wildlife of Natal with special amphasis on butterflies photographed in situ. Her close-ups of elephants, rhinos and dainty antelopes were so realistic as to appear present in the lecture hall.

Nepalese Jungle Safari began at Megauly airport, where elephants, not taxis, awaited our arrival; then a two-hour ride in the Chitwan National Park travelling over grassland, across the Rapti river, and through woodlands. "Jumbo" disposed of overhanging branches with ease and snapped offending lianas as we would break cotton. In the jungle we saw Indian rhinos (*Rhinoceros unicornis*) and several species of deer. The elephants took all hazards in their stride, prudently testing any uncertain terrain with their sensitive trunk tips.

At the lodge we were allocated our cabins, which were dark, lit by a flickering candle or a temperamental hurrican lamp. A lecture was given by "Chuck" (Charles McDougal) to inform us on the wildlife in the park and how to conform to safety regulations—tigers were number one on our

list. Later on we moved to Tiger Tops Tented Camp, which was reached by canoe and on foot. Here we had our first sighting of a male tiger. On the banks of the River Narayani we watched a mugger crocodile basking in the sun. Tracks of sloth bears (*Melursus ursinus*) were seen in the riverine woodland.

Back at Megauly airport at the end of the safari, I noted elephants drawing water from their stomachs by means of their trunks—an activity not generally recognised.

Dr. G. Ames lectured on the substance D.N.A. (deoxyribo-nucleic acid) which is the fundamental genetic material in all multi-cellular organisms. For example, animals with millions of cells must have some means of communcation between cells and the co-ordination of their activities. An American immunochemist had, in 1944, by experimentation, discovered how the hereditary messages were carried in the structure of the molecule of what was until then an obscure acid, but is now known as D.N.A.

*1979 Lectures*

Miss H. Brotherton, Secretary of the Dorset Naturalist Trust, spoke of the rich and diverse fauna and flora of the Dorset countryside and the stresses which are placed upon them. She mentioned, in particular, loss of habitat, pollution and irresponsible herbicide spraying. The D.N.T. has, by diplomatic approaches to farmers and landowners, persuaded them to spare some hedgerows and small pockets of land to conserve both fauna and flora of special scientific importance.

Experiences of a Naturalist Abroad. Many countries have been visited chiefly to study wildlife, mammals in particular which are endangered or rare. As examples: India and Nepal *Rinoceros unicornis*, and *Panthera tigris*. Assam golden langur, *Presbytis geei*. A permit was required from the Bhutan government to cross the river Manas in Assam. This was discovered as a new species in 1960 in the foothills of the Himalayas by the late E. P. Gee. New Zealand the tuatara, *Sphenodon punctatus*, found only on about twenty islands. It survives as a living representative of an order of reptiles of an ancient world.

Australia, the duckbill platypus, *Ornithorhynchus anatinus*, the echidna *Tachyglossus auculeatus*, both monotremes and the koala, *Phascolarctidae cinereus*, a marsupial or pouched animal.

Galapagos creatures mentioned elsewhere in the Proceedings.

Zaire the mountain gorilla, largest of the primates. A very endangered mammal. These were tracked to a height of 9000 feet plus. Loss of habitat and poaching chiefly responsible for decline.

Ecuador for spectacled bears, the *marctos ornatus*, on the slopes of Mt. Cotopaxi and the Hoatzin, a bird still retaining some reptilian features. Experiences on a lighter side, to mention three episodes: rounding up hundreds of sheep and lambs on a single saddle motor-cycle, minus a foot-rest, shared with the owner of the sheep station: flying over Mt. Cook range in a 5-seater plane and further flights in small float-planes to photograph the interior of volcanoes near Rotorua.

"A Year in the Lives of our Amphibians and Reptiles", a lecture given by Dr. Ian Spellerberg on the three species of snakes (Serpentes or Orphidia

of the order Squmata) represented by the grass or ringed snake, *Natrix natrix,* the largest of the three species; the smooth snake, *Coronella austriaca;* the adder or viper, *Vipera berus.* The last named is the only venomous snake in this country and brings forth living young, eight to ten born between July and September. The poison injected is not always sufficient to kill outright and the victim will wander off, but it will be tracked by special scent organs. The tongue is long and deeply forked and is covered with numerous sensory cells. These are used in conjunction with an organ known as Jacobson's organ, situated in the roof of the mouth.

Anal glands, which produce a thick oily secretion, are operational except during hibernation, possibly to bring the sexes together. In this country, pairing generally takes place in the Spring, soon after emerging from hibernation, which normally extends from late autumn to early spring.

Grass snakes lay between 20 and 30 eggs, preferably in heaps of manure or other compost, generation of heat being important. When the eggs are laid they are covered with a secretion from the oviduct, which has the property of sticking them together in bundles. Period between mating is approximately two months. Development of the embryo has already begun when the eggs are laid. Hatching takes from 6 to 10 weeks, depending upon temperature and the degree of development of the embryo when the egg is laid. Emergence usually takes place in late August or early September.

There are two species of lizards, family *Lacertidae,* the sand lizard, *Lacerta agilis* and the common or viviparous, *Lacerta vivipara.* The former is endangered by loss of habitat. Of amphibian newts, *Caudata* genus *Triturus;* frogs, *Rana temporia* and toad *Bufo bufo,* creatures of pond and ditch are disappearing by infilling of habitat or draining schemes.

An Informal Talk on Deer was preliminary to the field meeting on the following day. Listed are some of the points made: chief ways of identifying the four species: red *Cervus elephas;* fallow *Dama dama;* Japanese sika, *Cervue nppon nippon;* and roe, *Capreolus capreolus.* Apart from size, the rump pattern or speculum is important, often being the only part of the deer seen before it beats a hasty retreat. Antlers, worn only by male deer, are another means, except that they are cast and regrown annually. Colour changes with the seasons of winter and summer, with the exception of the menil fallow which retains its spots throughout the year. Fewmets (droppings) vary in size and shape and vary according to the season and food eaten. Mostly there is a point at one end; in the males a concavity at the opposite end. Generally speaking, these descriptions are fairly reliable, distinguishing them from droppings of rabbit and sheep. Slots made by cleaves of feet are different in the species and the place to look for them is on soft ground. Because they have no incisor teeth in the upper jaw, deer do not make a clean cut on woody stems such as bramble and briar, two of their important food items. These are some of the points for deer watching.

The following is an excerpt of a lecture on the Galapagos lands—Wildlife and Animal Behaviour. These islands are volcanic lying about 600 miles off the west coast of the South American mainland and most are just south of the equator. The Humboldt current was responsible for bringing creatures

of Antarctica to the islands and have bred and live side by side with those of equatorial waters, i.e. fur seals and tropic birds. Specialities are giant tortoises, sea lions, fur seals, land and marine iguanas, blue footed boobies, waved albatross, flightless cormorants and Darwin's finches.

Giant tortoises are the most famous inhabitants. They can survive long periods of drought by absorbing quantities of water and fat in their tissues. Their chief food are grasses, leaves and opuntia pads. The mating season varies but is generally between March and July and is a noisy affair as the males become aggressive and pseudo battles take place to gain a mate. After mating the females begin the trek to lower areas. The nest is made by the female using only her hind legs. The time taken to excavate the hole and to refill it takes up to 13 hours. Four to 8 months later, according to the temperature, the hatchlings dig themselves out.

Land iguanas, genus *Conolophus,* are yellowish brown and are 4 feet long. They live in the drier parts where they burrow in soft, dry soil. They feed on shoots, bark, grasses, cacti fruits and opuntia pads including the pad's spines. Their scaly skins are infested with ticks, which are picked off by mocking birds and Darwin's finches. During the breeding season the males use their heads—not their teeth or claws—in push and shove matches, until one is knocked off the territory or takes on a submissive attitude.

Marine iguanas, genus *Amblyrhynchus,* are found along the coasts basking in the equatorial sun. They are about 3 feet long; hands and feet are provided with long, strong claws. The skin is sooty black with a row of light grey spines growing along the back from neck to end of tail. This is the only lizard in the world that feeds primarily on algae. Their short, blunt noses allow them to crop seaweeds growing on rocks. When swimming the head is held high and the vertically flattened tail acts as a rudder.

Mating begins in January when the males become territorial and fight in a similar manner to the land iguanas. Two to three eggs are laid in the sand and the hatchlings receive no help from the adults. Marine iguanas, like all reptiles, are cold blooded, their body temperature of 95 to 100 degrees fahrenheit varying with that of the environment. Temperature can be maintained in the daytime by regulating the portion of its body that is exposed to the sun.

*Sea lions.* The bulls are identified by their domed head and thick neck and shoulders. They are polygamous and control a harem of about 30 cows. The greater part of a bull's life is one of perpetual vigilance, constantly patrolling his stretch of beach and sea. The cow gives birth to a single pup, which she suckles for 15 to 18 months. During pregnancy the cow calls to her pup to familiarise it with her voice. There is a purpose for this: a cow returning from a feeding trip in the sea on to a beach full of noisy cows and pups, will give her call which her pup will recognise. It will make tracks towards her, and to make sure that the pup is really hers, she gives it a good "sniff". A cow allows no other pup to suckle from her.

*Monotremes and Marsupials of Australia.* As mammals increased in numbers, reptiles declined. A major reason for the success of mammals depended upon biological changes, such as the ability, being warm-blooded,

to regulate body temperature; growth of hair or fur instead of scales, changes which allowed them to live in wider climatic conditions and terrain; development of biting and grinding teeth, affording a more varied diet; development of mammary glands and a placenta to nourish their young to full term, with the exception of marsupials, instead of egg laying with its attendant predation.

Two creatures, the platypus, *Ornithorrhynchus anatinus,* and the echidna, *Tachyglossus aculeatus,* are the only surviving members of the monotremes and are a link between mammals and reptiles. The word monotreme means single opening—the cloaca, common to birds and reptiles, for the purpose of reproduction and elimination.

The duckbill platypus has thick, brown fur, mammary glands and warm blood, attributes of a mammal. Its duck-like bill and webbed feet suggest a bird. Although it lays eggs, they are more reptilian-like, having a leathery quality. The male has a poison spur on each hind foot. The female makes a nest in a 20 feet tunnel in a river bank and incubates them by curving her body and tail around the egg or eggs.

The female echidna or spiny anteater lays one egg in a pseudo-pouch, produced only at the breeding season. In it are the mammary glands and it remains in the pouch for almost six weeks, at which time the spines have hardened.

Marsupials are pouched animals which give birth to young in an embryonic condition at about 28 to 33 days. Full development is completed in the pouch. At this stage the embryo is blind and about one inch long. The journey from the urogenital opening is about five inches, and once inside the pouch it clamps its mouth on to a teat and remains there for several weeks. After a few months it hops out to nibble grass but returns into the pouch at the first sign of danger.

Within a few days after parturition the female mates again but she has the power to withhold development if external conditions are not propitious. The teats can produce different milk formulae—a high fat content for a joey and a low one for the newborn.

Creatures of our countryside, from the smallest pigmy shrew to the largest of the deer family were spoken about in this talk. The New Forest, the main area concerned, has a varied structure of heathland, woodlands, plains, waterways, ponds and seashore with a consequent variety of species. Speaking generally, but with some overlap of terrain and fauna, woodlands provide food and cover for mice, voles, badgers, foxes and deer. On the periphery hedgehogs, hares and rabbits can be found, while along the hedgerows, banks and rough pasture bank voles, short-tailed field voles, stoats and weasels find sanctuary and food. In the streams and ponds water voles and water shrews, newts, frogs and toads provide interest, enlivened in the spring by the vocal efforts of the frogs.

On occasions the peace of the night can be shattered by the "Baskerville Hound" call of foxes and badgers. Autumn is a time of activity of the rutting bucks and stags, broadcasting their challenges by groans and roars, while in another area the peculiar whistles of sika stags may startle the uninitiated.

The Rev. Stanley Dedman spoke on fresh-water snails and slugs, giving

details of their body functions and anatomy. The fresh-water limpet, *Ancylus fluviatalis,* about one-third of an inch long, feeds on minute vegetative growth on stones and aquatic moss, not only in ponds but also on wet mossy rocks above. They hitch-hike to fresh areas by clinging to a water beetle. Its stomach contains fine particles of sand or soil which aids digestion. Its radula (tongue) has an aggregate of 9,000 teeth. Great pond snail, *Limnaea stagnalis,* the biggest pond snail found only in large ponds. Catholic in choice of food with a bias on animal matter, e.g. newts, sticklebacks and larvae of water beetles and is at times cannibalistic. The flat coiled ponds snails, *Planorbis,* a typical species is the ram's horn or trumpet snail. It has no elevated spire but the whorls are all in the same plane. The snail's small size in contrast to its shell is a distinct advantage. It can retreat well into a safe distance to avoid predation and acts as a reservoir for a plentiful oxygen supply. It also exudes an unpleasant red fluid as a further deterrent.

Land slug, *Testacella haliotidea,* is three inches long and differs from other species by having the thickest part of its body towards the rear. The animal can elongate its body enabling it to pass through the narrow burrows of its favourite diet, the earth worm. It has no jaws, as in other molluscs that feed on vegetation, but its radula is covered with long sickle-shaped teeth. The lack of jaws is not a disadvantage because it rapidly extrudes its pharynx, transfixes the worm with some of these long radula teeth, which are gradually released and the worm is swallowed. If there is a drought the *Testacella* burrows to a depth of three feet, or failing this it excretes mucus which hardens and protects the snail from moisture loss.

Tree slug, *Limax marginatus,* feeds entirely upon lichens. Seen on a tree its colour and markings are almost identical with the background. To descend from branch to branch it exudes a thread of slime.

*K. Milner Bennetts, Chairman*

## Zoology—Ornithology

This Section continues to hold regular Field Meetings each fortnight throughout the year, and the addition of a number of keen and knowledgeable new members has added to the interest and enjoyment of the Section as a whole.

We are fortunate in Bournemouth to be close to extensive areas of coastline and marshes which we regularly visit, particularly during spring, autumn and winter, observing both such waders as Black Tailed Godwit and Bar Tailed Gotwit, Greenshank, Spotted Redshank and Grey Plover, and also in spring and particularly in autumn, many small passerines on migration—Wheatears, Whinchat, Yellow Wagtails, Spotted Flycatchers and Warblers—sometimes in quite large numbers.

In August and early September we have seen Green Sandpipers at Dibden Bay and Moyles Court Gravel Pits. They are fairly easily distinguished from other sandpipers by their dark upper parts and brilliant white rump.

Crichel Lake, which we visited during the winter by kind permission of the Crichel Estates, and the gravel pits at Moyles Court produced a good

variety of wintering duck and Great Crested Grebe including Goosander, the largest of the 'saw-bill' ducks and always a welcome visitor.

In January, on the grassland surrounding Crichel Lake, we saw large flocks of Fieldfare and Redwing. These thrushes come south from Scandinavia in the winter and are a colourful sight in fields and parkland.

We took part once again in the January Duck and Wader Count in Poole Harbour and were able to send in a good varied count of duck, waders and gulls. We noticed that Brent geese are increasing in numbers in Poole Harbour.

Our intended visit to the Chew Valley Reservoirs in February had to be cancelled owing to snow and ice on the roads, but instead we went to look at the water meadows at Winkton where we saw large flocks of White-fronted Geese, Bewick Swans and Waders including Ruff. We also saw Brambling, the Northern Chaffinch, only seen here in the winter, near Moyles Court.

At Hengistbury Head in April the party watched a Short-eared Owl quartering the shore. This owl regularly hunts during daytime.

Our meeting to the Thorncombe Nature Trail took place in the evening. Blackcaps and Garden Warblers were singing—which was a help to those who found the songs of the two birds difficult to distinguish.

In August it was thrilling to see a Hobby fly past us on moorland near Moyles Court and we had a fine view of the striking head of this falcon: white neck patch with black moustachial stripe, and also the rufous "trousers" and long pointed wings.

Our lectures this year have been on British Birds by Mr. A. Bushell, and Birds in Nigeria by Mr. Elgood, one of our own members, whilst another member, Mr. John Follett, completed, with the second part, his most interesting talk on British Hawks. All these lectures were fully illustrated.

I am most grateful to Miss Gwen Hayball for all her help as my deputy, and to those kind members who have so ably assisted me by leading Field Meetings.

*L. M. Maddox, Chairman*

## Local Record List of Birds of Particular Interest

Slavonian Grebe, *Podiceps auritus*. 9th. Nov.ember, 1978, Stanpit
Long-tailed duck, *Clangula hyemalis*. 6th April, Hengistbury Head.
Eider, *Somateria mollisima*. 6th April, Hengistbury Head.
Goosander, *Mergus merganser*. (3) 20th February, Crichel Lake
White-fronted Goose, *Anser albifrons*. flock, 16th February, Ibsley.
Brent Goose, *Branta bernicla*. 12th December, 1978, Lepe. 9th January, Poole Harbour. 20th March, Keyhaven. 6th April, Hengistbury Head.
Bewick's Swan, *Cygnus bewickii*. 16th February, Winkton.
Hobby, *Falco subbuteo*. 21st August, Moyles Court.
Jack Snipe, *Lymnocryptes minimus*. 5th October, 1978, Lodmore.
Black-tailed godwit, *Limosa limosa*. 12th December, 1978, Lepe. 30th August, Keyhaven (50). 14th September, Dibden Bay.
Green Sandpiper, *Tringa ochropus*. 21st August, Gravel Pits. 14th September, (3) Dibden Bay.
Spotted Redshank, *Tringa erythropus*. 20th March, Keyhaven.

Greenshank, *Tringa nebularia*. 26th October, 1978, Brands Bay. 5th October, Radipole and Lodmore. 20th March, Keyhaven. 30th August, Keyhaven (6).
Knot, *Calidris canutus*. 30th August, Keyhaven
Purple Sandpiper, *Calidris maritima*. 6th April, Hengistbury Head.
Ruff, *Philomachus pugnax*, (2). 12th February, Winkton.
Black Tern, *Childonias niger* (2). 14th September, Dibden Bay.
Puffin, *Fratercula artica*. 15th May, Winspit.
Turtle Dove, *Streptopelia turtur*. 30th August (7), Keyhaven.
Short-eared Owl, *Asio flammeus*. 6th April, Hengistbury Head
Woodlark, *Lullula arborea*. 14th July, Beaulieu Road.
Bearded Tit, *Panurus biamicus*. 5th October, 1978, Radipole.
Whinchat, *Saxicola rubetra*. 20th April, Durlston Head. 30th August, Keyhaven.
Cetti's Warbler, *Cettia cetti*. 5th October, 1978, Radipole.
Lesser Whitethroat, *Sylvia curruca*. 30th August, Keyhaven. 14th September, Dibden Bay.
Brambling, *Fringilla montifringilla*. (2), 16th February, Moyles Court.

## Library

As in the previous year the Library continued without a Librarian until April, and apart from basic administration the only major project was the re-decoration of the Reference Library.

Several excellent new books were purchased earlier in the year, mainly by the Astronomy Section which appeared to have fallen behind in up-to-date publications. It is regretted that further purchases are somewhat restricted due to the overall financial position of the Society, but happily the number of books borrowed by members has continued to increase. The donation of books and the continuing donation of magazines is greatly appreciated.

*R. E. Harwood, Hon. Librarian*

## Members Days

Over the past year there has been a variety of subjects, allowing a wide spectrum of our activities to interest as many members as possible. The coming year will see a change, as I retire and Mrs. H. M. Dickinson will now be the new Chairman for "Members Days". I wish her every success for the coming year and I am sure the members will enjoy the meetings.

In conclusion, I must thank all Chairmen of Sections for their help and support during my term of office, to Dr. T. M. Bell for acting as our "Quiz Master", and to Mrs. K. M. Hunt for her botanical expertise in answering our many queries about the plants in the garden at No. 39.

*J. C. Earl, Chairman*

## Museum

On March 8th, 1979, your Curator attended a Fire Fighting Demonstration held at the Bournemouth Central Fire Station. Our instructor showed us how to use the various modern fire extinguishers, each to be used for a specific purpose such as room fires and electrical equipment. For a fire

to be effective it must have air, fuel and heat combined. If one of these components was eliminated the fire would go out of its own accord.

The latest fire extinguisher used dried ice foam. This was to be used for petrol and oil fires, so as not to use water which tended to only spread a fire. Where electrical equipment was involved one extinguisher used a dry powder for indoor fires so that when the fire was put out the dry powder could be swept up by an electric cleaner, and so no mess would be left all over carpets, etc. We were allowed to put out a fire of burning petrol and oil mixed, as a practical demonstration of how to deal with this very inflammable substance. Altogether a very practical experience indeed.

Last May 1st we had a visit from children from St. Mary's Catholic School, Walthamstow, London. The children were supervised by two teachers. They were first taken to our lecture hall for a short talk on the origins of B.N.S.S. and its objects. I welcomed them to our Museum and tried to show them how to advance their own natural history knowledge. The children were exceedingly well behaved. To my astonishment they paid very little attention to the specimens of some of our collections of very beautiful butterflies. They enjoyed the Diorama upstairs and the Archaeology Room, lingering long regarding the two examples of Egyptian coffins in their special cupboard. They were all making notes, etc., for future essays when they returned to Walthamstow. To my further surprise all the children shook hands with me as they prepared to board their coach when leaving our building. The visit of these children to our Museum was so well worthwhile for both your Curator and the children themselves.

Three weeks later I had another pleasant surprise for I received a letter of thanks from the Headmaster and found enclosed in the bulky envelope 26 individual letters from each of the children expressing their own especial thanks, which I found very gratifying indeed.

*W. A. Bray, Curator*

## The Garden

Mrs. R. C. Crane and Mrs. L. V. Nicklen have given us some plants, including rose trees. They and others have regularly helped in the garden this year. We would, however, be glad of more assistance.

*W. Chomé*

## Lectures, Field Meetings and Visits, 1978-79

**General** **Chairman: Miss K. M. Bennetts**

| | | LECTURE | LECTURER |
|---|---|---|---|
| 1979 | | | |
| Apr. | 18 | Reminiscences of Some Other Museums | G. Teasdill |
| May | 2 | Himalayan Trek | Mrs. J. Gray |
| May | 23 | Marwell Zoological Park | Miss K. M. Bennetts |
| May | 30 | Royal Mews, Buckingham Palace | G. Teasdill and Miss K. M. Bennetts |
| June | 18 | Return of Steam | W. O. Robins |
| July | 18 | Gleanings from British Columbia | Miss K. M. Bennetts |
| Aug. | 22 | Under Canvas Around Jordan | Miss Sally Webster |

**Astronomy** **Chairman: Graeme Nash**

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|---|---|---|---|
| 1978 | | | |
| Nov. | 11 | Planetary and Lunar Observations | Adrian Owen |
| Dec. | 30 | Planetary Exploration with Filters | Colin Pither, F.R.A.S. |
| 1979 | | | |
| Jan. | 13 | Relativity | Graeme Nash |
| Mar. | 24 | Artificial Satellite Observations | Geoffrey Kirby, B.SC. |

**Archaeology and History** **Chairman: W. V. K. Channon**

| | | | |
|---|---|---|---|
| 1978 | | | |
| Oct. | 18 | The Maltese Islands in History | W. V. K. Channon |
| Nov. | 25 | Fleeting visits to places of interest | Dr. W. H. Tattersall, M.A., M.D. |
| Dec. | 13 | In the steps of the Crusaders | Miss M. Stocker |
| 1979 | | | |
| Jan. | 17 | 18th and 19th Century Wedgwood | Mrs. B. Jarvis |
| Feb. | 3 | Some Stately Homes in History | W. V. K. Channon |
| Mar. | 19 | Peking—Past and Present | W. H. Lee |
| Apr. | 28 | Down the Corridors of Time | W. A. Stinton, F.R.G.S., F.G.S. |
| May | 9 | History in stained glass | H. L. Chaney |
| June | 20 | The holy Shroud of Turin | G. Teasdill |
| Sept. | 29 | The new Archaeological Gallery at Scaplen's Court Museum, Poole | Mrs. M. R. Stone, B.A. |

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|---|---|---|---|
| 1978 | | | |
| Oct. | 12 | Conducted Tour of Christchurch Priory | J. R. Forster |
| 1979 | | | |
| June | 25 | Coach to places of Historical Interest—Southampton | W. V. K. Channon and F. R. Watson |
| July | 11 | Coach to Forde Abbey and Sherborne Abbey | W. V. K. Channon |

**Botany** **Chairman: Mrs. D. Dain**

| | | |
|---|---|---|
| 1978 | | |
| Sept. | 28 | Canford Heath |
| Nov. | 28 | Poole Park and Upton Park |
| 1979 | | |
| Apr. | 19 | Studland |
| May | 17 | Ornamental Drive, New Forest |
| June | 7 | Durlston Head |
| June | 21 | Botany and Ornithological Outing to Queen Elizabeth's Country Park |
| June | 30 | Binden Hill and Mupe Bay (Botany and geology) |
| July | 19 | Ulwell |
| Sept. | 13 | Corfe Castle |

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|---|---|---|---|
| 1978 | | | |
| Sept. | 18 | Flowers of Dorset and the South West | Miss J. White |
| Oct. | 9 | Some notes on the Flora of E. Africa | Mrs. K. Hunt |
| Dec. | 2 | High Summer and Season of Change | M. R. Shepherd |
| 1979 | | | |
| Jan. | 20 | Some Alpine Plants in Cultivation | S. C. S. Brown |
| Feb. | 28 | Mediterranean Orchids | Dr. T. Norman |
| Mar. | 12 | All the British Wild Orchids | Sqdn. Ldr. J. L. C. Banks |
| Apr. | 7 | Heathland Flowers | C. E. Peppin |
| May | 23 | Country Calendar | Miss M. Nelson |
| June | 11 | European Alpine Flora | Sqdr. Ldr. J. L. C. Banks |
| July | 23 | Trees in Wessex | John Lavender |

**Geography** **Chairman: W. O. Robins**

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|---|---|---|---|
| 1979 | | | |
| Jan. | 6 | Five rivers to Salisbury | Mr. W. O. Robins |
| Feb. | 12 | Sewage disposel dilemma for Bournemouth | Mr. Huntingdon |
| Mar. | 28 | Anglesey | Mr. F. Oldham |
| Apr. | 21 | Some ecological considerations of the development of an oilfield in Dorset | Miss M. E. Dennis |
| May | 5 | South Africa | Col. A. Hemsley |
| June | 23 | Places associated with Thomas Hardy | Miss G. Chapman and Miss Stock |
| July | 9 | Discovering Dorset | Mr. Alan Horton |
| July | 21 | Verwood old and new | Miss K. M. Pawson |
| Aug. | 11 | The Charm of the English village | Mr. W. Robins |
| Sept. | 12 | Isles of Scilly | Mr. L. H. Chancy |
| Sept. | 17 | Down under | Mr. H. L. Edwards |

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| 1978–79 | | | |
| Oct. | 10 | Stour Valley No. 1. Iford to Throop | Mrs. Robins |
| Feb. | 22 | Ordnance Survey, Maybush | Mr. F. R. Watson |
| Mar. | 29 | Romsey (Urban Geography project) | Mr. W. Robins |
| Apr. | 26 | Stour Valley No. 2. Throop to W. Parley | Mr. W. Robins |
| May | 24 | Worth Matravers, Seacombe Ledge and Dancing Ledge | Mr. W. Robins |
| July | 4 | Wimborne and Deans Court (Urban Geography project) | Mrs. W. Robins |
| Aug. | 20 | Stour Valley No. 3. W. Parley to Hampreston | Mr. W. Robins |
| Sept. | 21 | Upper Itchen Valley | Mr. W. Robins |

**Geology** **Chairman: Mrs. B. Taylor**

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|---|---|---|---|
| 1978 | | | |
| Oct. | 25 | Coal, past, present, and future | Dr. T. H. Blakeley |
| Nov. | 20 | Building with stone: New Stone Age | F. R. Watson |
| Dec. | 16 | Petroleum. Geology of the North Sea | Mrs. M. E. Hall, M.A., OXON. |
| 1979 | | | |
| Jan. | 31 | Geological History of Britain | Mrs. B. Taylor |
| Mar. | 14 | Dartmoor | J. H. Lavender, B.SC., A.R.C.S. |
| May | 12 | The Grand Canyon | W. H. Lee |
| June | 16 | East of Lulworth Cove | Mrs. M. Saunders |
| | | Some geological phenomena. Illustrated by Dr. Wray's slides | Mrs. B. Taylor |
| July | 7 | Cornish Mines and Minerals | W. A. Stinton, F.R.G.S., F.G.S. |
| Aug. | 15 | Elephants were here | J. .H. Lavender |

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| 1979 | | | |
| Mar. | 8 | Peveril Point | Mrs. B. Taylor |
| Apr. | 5 | Geological Terrace, Russell Cotes Museum | Mrs. B. Taylor |
| June | 8 | Hengistbury Head | Mrs. B. Taylor |
| July | 13 | Boscombe Cliffs | Mrs. B. Taylor |
| Sept. | 5 | Geological Terrace | Mrs. B. Taylor |

**Physics and Chemistry** **Chairman: Mr. T. A. Crawshaw**

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|---|---|---|---|
| 1978 | | | |
| Oct. | 7 | Optics in Clinical Medicine | Prof. H. H. Hopkins, F.R.S. |
| Nov. | 22 | Energy Futures for Britain | P. E. Richmond, M.A., B.SC. |

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| 1979 | | | |
| Jan. | 27 | Sir Humphry Davy—A Bi-centennial Tribute | W. A. Stinton, F.R.G.S., F.G.S. |
| Feb. | 6 | Visit to Alderney Waterworks | |
| Feb. | 21 | Military Bridging | E. Longbottom, B.SC., M.I.C.E. |
| Mar. | 31 | Sugar and Scenery in Queensland | T. H. Blakeley |
| Apr. | 23 | Sir Humphry Davy (Repeat) | W. A. Stinton, F.R.G.S., F.G.S. |

**Zoology—Entomology** **Chairman: Sqdn. Ldr. J. L. C. Banks**

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| 1978 | | | |
| Oct. | 28 | Life Histories of the U.K. Butterflies (Pt. 5) | Miss M. M. Brooks |
| Nov. | 8 | Observations of interesting Insecta | S. C. S. Brown |
| Dec. | 11 | Nature observations in southern Spain | Sqdn. Ldr. P. Gray |
| 1979 | | | |
| Jan. | 15 | Observation of scarce Lepidoptera | A. Richardson |
| Feb. | 10 | Aberration and variation in U.K. Lepidoptera | R. Stockley |
| Mar. | 3 | Life histories of New Forest Odonata | Sqdn. Ldr. J. L. C. Banks |
| May | 14 | Life-cycles of all the British Butterflies (Pt. 1) | Miss M. M. Brooks |
| Sept. | 15 | Observations on some Butterflies and Moths | Miss M. M. Brooks |

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|---|---|---|---|
| 1978 | | | |
| Oct. | 3 | Fritham pond area | Sqdn. Ldr. C. Banks |
| 1979 | | | |
| Mar. | 27 | Hurn woods area | Sqdn. Ldr. C. Banks |
| May | 31 | *O. curtisii* Project (1) | Sqdn. Ldr. C. Banks |
| June | 12 | *O. curtisii* Status project (2) | Sqdn. Ldr. C. Banks |
| June | 28 | Brockenhurst area | Sqdn. Ldr. C. Banks |
| July | 17 | Woods west of Salisbury | Sqdn. Ldr. C. Banks |
| July | 24 | Bentley Woods | Sqdn. Ldr. C. Banks |
| Aug. | 9 | Hod Hill area | Sqdn. Ldr. C. Banks |
| Aug. | 16 | Martin Downs area | Sqdn. Ldr. C. Banks |
| Sept. | 4 | Hatchet and Sowley lakes area | Sqdn. Ldr. C. Banks |
| Miscellaneous | | | |
| Jan. | 24 | New members' day (Ent:) | Miss M. Brooks and Sqdn. Ldr. C. Banks |
| Apr. | 11 | "Quiz" on Natural Sciences (Ent:) | Dr. T. M. Bell |

**Zoology—Mammalia and Natural History** **Chaiman: Miss K. M. Bennetts**

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| 1978 | | | |
| Oct. | 11 | A Naturalist in Natal | Miss M. M. Brooks |
| Nov. | 4 | Nepalese Jungle Safari on Elephants | Miss K. M. Bennetts |
| Dec. | 20 | The Messenger Service of D.N.A. in all Animal Life | G. H. H. Ames |
| 1979 | | | |
| Jan. | 22 | Dorset Wildlife | Miss H. Brotherton |
| Feb. | 24 | Experiences of a Naturalist Abroad | Miss K. M. Bennetts |
| Mar. | 17 | A Year in the Lives of our Amphibians and Reptiles | Dr. Ian Spellerberg |
| Apr. | 9 | An informal Talk on Deer | Miss K. M. Bennetts |
| June | 27 | Galapagos Islands—Wildlife and Animal Behaviour | Miss K. M. Bennetts |
| July | 16 | Monotremes and Marsupials | Miss K. M. Bennetts |
| Aug. | 8 | A Naturalist's Experiences Abroad | Miss K. M. Bennetts |
| Aug. | 13 | Creatures of our Countryside | Miss K. M. Bennetts |
| Aug. | 29 | Snails | Rev. Stanley Dedman |

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|---|---|---|---|
| 1978 | | | |
| Oct. | 6 | Sika Deer | Mrs. M. Arnold and Miss K. M. Bennetts |
| Oct. | 17 | Red Deer | Mrs. M. Arnold and Miss K. M. Bennetts |
| Oct. | 26 | New Forest Wagons | Miss K. M. Bennetts |
| Nov. | 2 | Holmesley Old Runway (Nat. Hist.) | R. R. Lees |
| Nov. | 7 | Deer South Oakley | Miss K. M. Bennetts |
| Nov. | 16 | Sika deer Project X | Miss K. M. Bennetts |
| Dec. | 5 | Dames Slough Inclosure | Mrs. R. Crane and Mrs. Arnold |
| Dec. | 19 | Holidays Hill Inclosure | J. G. Parkinson |
| 1979 | | | |
| Jan. | 16 | Anderwood Inclosure | J. G. Parkinson |
| Jan. | 30 | Burley Area | Miss K. M. Bennetts |
| Feb. | 9 | Ober Water | Mrs. M. Arnold and Miss Souter |
| Feb. | 27 | Studland Heath (Nat. Hist.) | The Warden and T. R. Wall |
| Mar. | 13 | Markway Hill | Mrs. L. V. Nicklen and Mrs. I. Beckwith |
| Mar. | 23 | Ober Water | J. G. Parkinson |
| Apr. | 3 | Charlton Marshall | S. A. Scott |
| Apr. | 9 | A Practical Deer Study | Miss K. M. Bennetts |
| Apr. | 24 | Fritham Area | Miss Davis and Mrs. Lund |
| May | 16 | Sopley Area | Mrs. M. Arnold and Mrs. R. Crane |
| May | 17 | "Pond Dipping" (Nat. Hist.) | Dr. T. M. Bell and Miss C. F. Noll |
| June | 19 | Anderwood Inclosure | J. G. Parkinson |
| July | 10 | Bolderwood/Highland Water | Mrs. M. Arnold and Miss K. M. Bennetts |
| July | 25 | Spetisbury (Nat. Hist.) | Mrs. H. Croad |
| Aug. | 2 | Bolderwood/Bratley Area | Miss S. Webster and Miss K. M. Bennetts |
| Aug. | 4 | Holmesley Lodge (Nat. Hist.) | R. G. Lees |
| Aug. | 14 | Anderwood Inclosure | Mrs. M. Arnold and Miss K. M. Bennetts |
| Aug. | 18 | Wootton (Nat. Hist.) | R. G. Lees |
| Aug. | 31 | Burley Area (Mam. and Nat. Hist.) | Miss K. M. Bennetts |
| Sept. | 18 | Holidays Hill | J. G. Parkinson |
| Sept. | 22 | Holmesley Old Runway (Nat. Hist.) | R. G. Lees |
| Sept. | 27 | Sika Deer Project X1 | Mrs. M. Arnold and Miss K. M. Bennetts |

**Zoology—Ornithology** **Chairman: Mrs. L. M. Maddox**

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|---|---|---|---|
| 1978 | | | |
| Nov. | 18 | British Hawks—Part 2 | J. C. Follett |
| 1979 | | | |
| Feb. | 17 | Birds in Britain | A. R. Bushell |
| Sept. | 10 | Birds in Nigeria | J. H. Elgood |

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| 1978 | | | |
| Oct. | 5 | Radipole Lake and Weymouth Area | D. Ireland (Warden) Mrs. L. M. Maddox |
| Oct. | 13 | Shipstall Point, Arne | Mrs. L. M. Maddox |
| Oct. | 26 | Brands Bay | Mrs. L. M. Maddox |
| Nov. | 9 | Stanpit Marsh | J. G. Parkinson |
| Nov. | 23 | Acres Down | Mrs. L. M. Maddox |
| Dec. | 12 | Sowley Pond and Tanners Lane | Mrs. L. M. Maddox |
| Dec. | 29 | Moyles Court | R. G. Lees |

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| 1979 | | | |
| Jan. | 9 | International Wildfowl Count—Winter 1978/1979 | Mrs. L. M. Maddox |
| Jan. | 26 | A visit to Wildfowl Trust, Slimbridge | Mrs. L. M. Maddox |
| Feb. | 16 | Chew Valley Reservoirs, Nr. Bristol | Mrs. L. M. Maddox |
| Feb. | 20 | Crichel Lake, Wimborne | Mrs. L. M. Maddox |
| Mar. | 9 | Anderwood Inclosure | J. G. Parkinson |
| Mar. | 20 | Keyhaven Marshes | Mrs. L. M. Maddox |
| Apr. | 6 | Hengistbury Head | R. G. Lees |
| Apr. | 20 | Durlston Head | Mrs. L. M. Maddox |
| May | 1 | Cowards Marsh and St. Catherine's Hill | Miss G. Hayball |
| May | 15 | Winspit | Mrs. L. M. Maddox |
| May | 25 | Castle Hill, Cranborne | Mrs. L. M. Maddox |
| June | 15 | Thornecombe Nature Trail | Mrs. L. M. Maddox |
| July | 14 | New Forest, Beaulieu Road | Mrs. L. M. Maddox |
| July | 31 | Frame Heath | Mrs. L. M. Maddox |
| Aug. | 24 | Moyles Court | R. G. Lees |
| Aug. | 30 | Keyhaven | Mrs. L. M. Maddox |
| Sept. | 14 | Dibden Bay | R. G. Lees |
| Sept. | 28 | Radipole Lake and Lodmore | D. Ireland (Warden) and Mrs. L. M. Maddox |

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## MEMBERS' DAYS

**Chairman: Mrs. J. C. Earl**

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|---|---|---|---|
| 1978 | | | |
| Oct. | 16 | Science and the Supernatural | Members |
| Nov. | 15 | The Five Day Field Meeting | The President and Mr. Thomas |
| 1979 | | | |
| Jan. | 24 | New Members Day | The President and Mr. Thomas |
| Feb. | 19 | Entomology in the Museum | Sqdn. Ldr. J. L. C. Banks |
| Mar. | 21 | Members' Slides | Members |
| Apr. | 11 | "Quiz" on the Natural Sciences | "Quiz" Master Dr. T. M. Bell |
| June | 13 | Round the Garden at No. 39 | Mrs. Hunt and Mrs. Dain |
| July | 4 | Shells | Miss K. Milner Bennetts |
| Aug. | 1 | Poems and Readings | Members |
| Sept. | 19 | Curios | Members |

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# Bournemouth Natural Science Society
## List of Presidents (1903-1979)

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|---|---|
| 1903—04 | J. E. Beale (Mayor of Bournemouth) |
| 1904—06 | G. E. J. Crallan, M.A., M.B., M.R.C.S. |
| 1906—07 | H. J. Waddington, F.L.S. |
| 1907—09 | A. Ransome, M.A., M.D., F.R.C.P., F.R.S. |
| 1909—10 | A. Smith Woodward, D.SC., F.R.S., F.L.S., F.G.S. |
| 1910—11 | Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S. |
| 1911—13 | Sir E. Ray Lankester, K.C.B., M.A., LL.D., F.R.S., F.L.S. |
| 1913—16 | Sir Daniel Morris, K.C.M.G., J.P., M.A., D.SC., D.C.L., F.L.S. |
| 1916—17 | The Rt. Hon. the Earl of Malmesbury, D.L., J.P. |
| 1917—18 | Sir Jethro J. H. Teale, M.A., D.SC., LL.D., F.R.S. |
| 1918—20 | Field Marshal Lord Grenfell of Kilvey, G.C.B., G.C.M.G., LL.D., F.S.A. |
| 1920—21 | Lt. Col. Sir David Prain, C.M.G., C.I.E., F.R.S. |
| 1921—23 | F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U. |
| 1923—24 | Sir F. W. Keeble, K.B.E., D.SC., F.R.S. |
| 1924—26 | Hubert Painter, B.SC., F.C.S. |
| 1926—28 | Heywood Sumner, F.S.A. |
| 1928—29 | Claude Lyon |
| 1929—30 | Professor F. O. Bower, D.SC., F.R.S. |
| 1930—31 | Henry Bury, M.A., F.L.S., F.G.S. |
| 1931—32 | Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S. |
| 1932—33 | J. P. Williams-Freeman, M.D. |
| 1933—34 | Rev. F. C. R. Jourdain, M.A., F.Z.S., M.B.O.U. |
| 1934—35 | Sir F. W. Dyson, K.B.E., M.A., D.SC., LL.D., F.R.S., F.R.A.S. |
| 1935—36 | Henry Bury, M.A., F.L.S., F.G.S. |
| 1936—37 | Sir Harold Carpenter, M.A., D.SC., F.R.S. |
| 1937—38 | Professor John Cameron, M.D., D.SC., F.R.S.E. |
| 1938—39 | Professor G. D. Hale Carpenter, M.B.E., D.M., F.L.S., F.Z.S., F.R.E.S. |
| 1939—40 | W. G. Aitchison Robertson, M.D., D.SC., F.R.C.P., F.R.S.E. |
| 1940—41 | Rev. Professor M. C. Potter, M.A., D.SC., F.L.S. |
| 1941—42 | Inst.-Capt. M. A. Ainslie, R.N., M.A., F.R.A.S. |
| 1942—43 | William C. Simmons, B.SC., A.R.C.S., F.G.S. |
| 1943—44 | Professor S. Mangham, M.A. |
| 1944—45 | A. S. Hemmy, B.A., M.SC. |
| 1945—46 | J. F. N. Green, B.A., F.G.S. |
| 1946—47 | Lt.-Col. C. D. Drew, D.S.O., F.S.A. |
| 1947—48 | W. J. Woodhouse, A.C.P. |
| 1948—49 | Edward Hindle, M.A., D.SC., F.R.S., F.Z.S. |
| 1949—50 | Mrs. W. Boyd Watt, F.Z.S., M.B.O.U. |
| 1950—51 | Professor Sir R. A. Peters, M.C., M.A., M.D., F.R.S |
| 1951—52 | Ernest Chambers, F.L.S. |
| 1952—53 | F. Williamson, F.R.HIST.S. |
| 1953—54 | H. E. Clarke, M.A., B.SC., F.R.I.C. |
| 1954—55 | W. J. Read, M.SC., F.R.I.C. |
| 1955—56 | W. S. Brown, B.SC. |
| 1956—57 | A. W. Legat, M.INST.C.E., M.I.S.E. |
| 1957—58 | D. A. Wray, PH.D., M.SC., F.G.S. |
| 1958—59 | Miss M. A. M. Penrose, B.SC. |
| 1959—60 | Miss D. M. Lowther, B.SC. |
| 1960—61 | James Fisher, M.A., F.L.S., F.Z.S. |
| 1961—62 | W. P. Winter, B.SC. |
| 1962—63 | F. H. Perring, PH.D., M.A. |
| 1963—64 | Miss F. M. Exton, B.A. |
| 1964—65 | Dame Kathleen Lonsdale, D.B.E., D.SC., F.R.S. |
| 1965—66 | A. J. Butcher, F.R.I.B.A. |
| 1966—67 | Mrs. A. K. Hunt, B.SC. |
| 1967—68 | Professor F. Hodson, PH.D., B.SC., F.G.S. |
| 1968—69 | T. Marshall Bell, B.A., M.B., B.CH. |
| 1969—70 | Ernest Chambers, F.L.S. |

# Bournemouth Natural Science Society

## List of Presidents (1903-1979)

(continued)

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| 1970—71 | Graham Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S. |
| 1971—72 | Miss Ursula M. Ogle |
| 1972—73 | Sqd.-Ldr. J. L. C. Banks |
| 1973—74 | Miss K. Milner Bennetts, F.Z.S. |
| 1974—75 | Donn Small, M.Sc. |
| 1975—76 | S. C. S. Brown, F.D.S., R.C.S., L.D.S. |
| 1976—77 | F. Oldham, J.P., M.A., B.SC., F.INST.P. |
| 1977—78 | W. H. Lee |
| 1978—79 | Mrs. G. M. Thomas, M.A., B.LITT. |
| 1979—80 | T. A. Crawshaw, F.M.INST.M.C. |

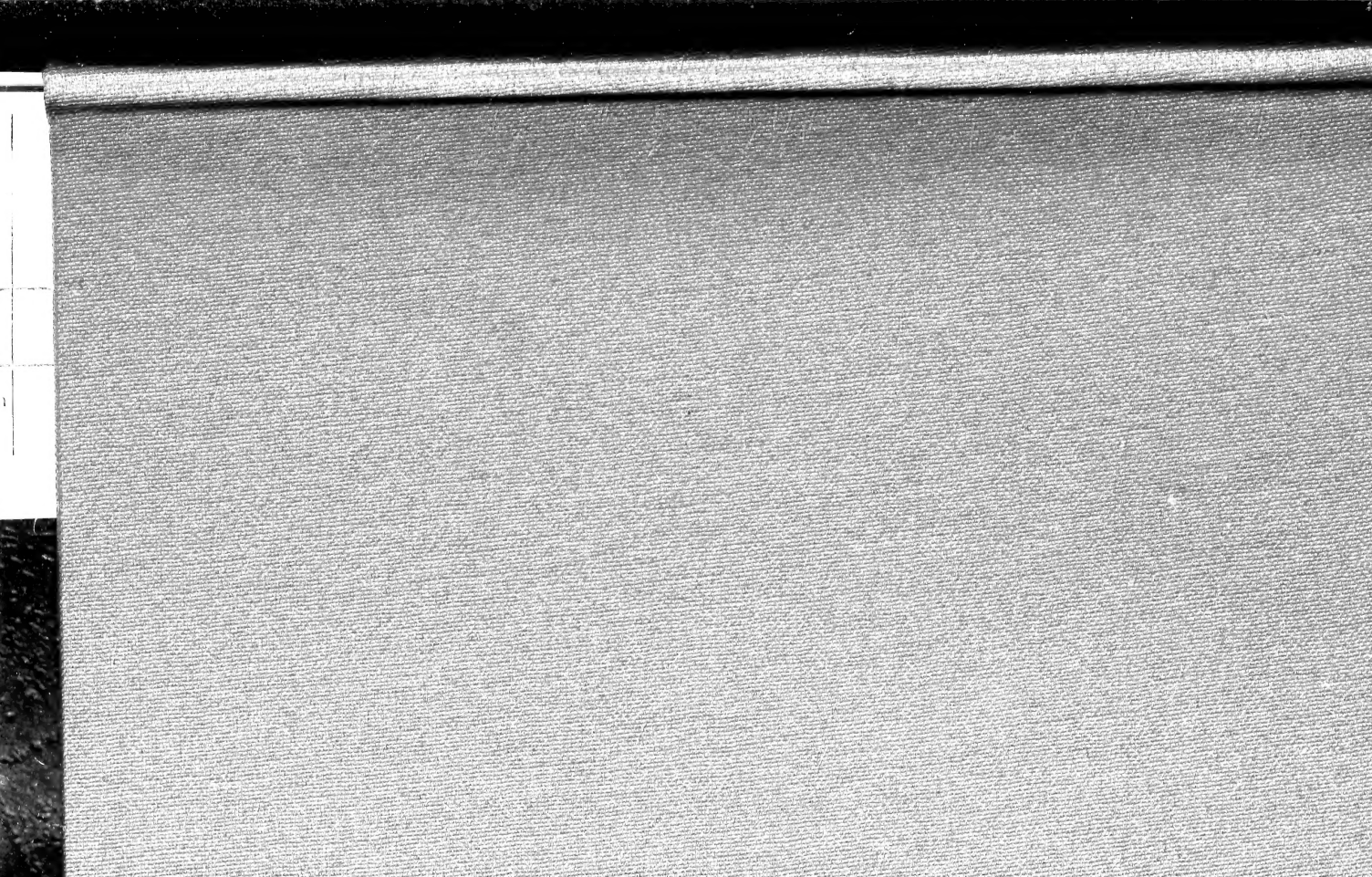
## PUBLICATIONS RECEIVED

The following publications were received in the Library during the year. Some of them were gifts from members who subscribe personally to the particular Society. The Library Committee are glad to record their appreciation of such gifts.

### 1. Publications issued by a Society or Institution

Birmingham Natural History & Philosophical Society—*Proceedings.*
Botanical Society of the British Isles—(1) *Watsonia,* (2) *Proceedings.*
British Trust for Ornithology—(1) *News Bulletin,* (2) *Bird Study.*
California Academy of Sciences—*Proceedings.*
Cambridge Antiquarian Society—*Proceedings.*
Dorset Natural History & Archæological Society—*Proceedings.*
Hampshire Field Club & Archæological Society—*Proceedings.*
Hampshire and Isle of Wight Naturalists' Trust Ltd.—*Proceedings.*
Hertford Natural History Society—*Transactions.*
Linnean Society of London (1) Botany, (2) Biology—*Proceedings*
Men of the Trees—*"Trees".*
National Trust—*Newsletter.*
Royal Horticultural Society—*"Gardens".*
Royal Society for the Protection of Birds—*"Birds".*
Senckenbergische Naturforschende Gesellschaft—*"Natur & Museum".*
Smithsonian Institution, U.S.A.—*Annual Report*
Société Jersaise—*Annual Bulletin.*
The British Entomological & Natural History Society—*Proceedings & Transactions.*
Torquay Natural History Society—*Transactions & Proceedings.*
Tromso Museum, Norway—(1) *"Astarte"* (2) *Acta Borealia*
Upsala University, Sweden—*Acta Phytogeographica Suecica.*
Zoological Society of London—
Christchurch Harbour Ornithological Group—*Birds of Christchurch Harbour report.*

### 2. Periodicals received

*"Nature", The Dorset Magazine, The New Scientist, Chemistry in Britain, "National Geographic", Newsletters and Year Books.*
*Alpine Garden Society Bulletin, Oryx, Proceedings Geologists Association.*

The Bourne Press, 3/11 Spring Road, Bournemouth